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List of the BIRDS of Fort Whipple, Arizona: with which are incorporated all other species ascertained to inhabit the Territory; with brief critical and field Notes, descriptions of new species, etc.

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The Territory of Arizona comprises that portion of what was formerly the vast Territory of New Mexico lying west of the 109th meridian; together with an extensive tract obtained from Mexico, known as the "Gadsden purchase." As at present bounded, Utah and Nevada form its northern limit, while its southern border is contiguous in its whole extent to the Mexican State of Sonora. The Colorado River separates the greater portion of its western border from California; the extreme southwestern corner of the Territory being at the junction of the Gila with the Colorado River.

The extensive area thus bounded, constitutes, in connection with New Mexico, what is known, in relation to its Faunal characteristics, as the "Southern Middle Province" of the United States.[*] It possesses marked features whereby it is distinguished from the western littoral Province, or Pacific region proper, as well as from the Eastern Province. Most of the characteristics of the Arizonian Avifauna are shared to a considerable degree by that of New Mexico; the main points of discrepancy being those few wherein the valley of the upper Rio Grande differs from that of the Colorado. It does not appear that the difference between the two slopes of the main chain of the Rocky Mountains is in this region very strongly marked. In general terms it may be affirmed that the Ornis inclines in character decidedly towards that of the Pacific region proper, as might be expected from the position of Arizona relative to the main chain of the mountains just named. But still notable differences from the truly littoral Fauna are apparent; and there can be little doubt that the presence of so extensive a desert just west of the Colorado exerts much influence in producing this result. At certain points however in this desert, some species, respectively typical each of its own habitat, are known to meet.[†] The features, dependent upon latitude. which separate Arizona from adjacent regions, to the north or south, are by no means so marked as those which distinguish it from the countries lying east and west, and mainly consist in the introduction into the lower warmer parts of the Territory, from Sonora, of several Mexican and subtropical species. A "wedge," so to speak, of these types is pushed a little northward of Mexico, and they are readily recognizable as a somewhat prominent element among the birds of Southern Arizona, and of the Colorado valley for a considerable distance. Perhaps this is more deciedly the case here than at other points on our southern border. A considerable number of species properly belonging to the United States Fauna, and generally distributed throughout Arizona, retire in winter beyond the Sonoran border; while at the same time it is interesting to note that some species[‡] breed quite high up in Arizona, or even further north, which are at the same time summer residents of the table lands of Mexico. To the northward, neither the climate nor physical geography of

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[*] See the American Journal of Science and Arts, vol. xli., Jan. and March, 1866; "On the Distribution and Migration of North American Birds, by Spencer F. Baird," where the several provinces into which North America is divisible are characterized, and the peculiarities of their Avifaunæ indicated.

[†] *E. g.* The *Lophortyx Gambeli* and *L. Californicus*, and very probably also some species of Jays; along the Mojave River. which rises in the San Bernadino Mountains, and flows eastwardly towards the Colorado River, affording a degree of fertility which is an inducement to the species just named and to others.

[‡] *E. g.* *Hesperiphona vespertina*, *Carpodacus Cassinii*, *Curvirostra americana*, *Plectrophanes melanomus*, *etc.*

Arizona are sufficiently diverse from those of adjacent Territories to produce any special differences in their Avifaunæ; unless indeed the apparent absence of one family[*] can be substantiated as a marked peculiarity.

Some facts of physical geography have a marked influence upon the birds. From the dearth of water throughout almost every portion of the Territory there results, as a natural consequence, a great paucity of Grallatorial and Natatorial forms; so much so, that with a few prominent exceptions, a list of the Water Birds of the Territory is little more than an enumeration of those of the Colorado and Gila Rivers. There is also to be noted, as an interesting fact, the effect of the hot, arid, desert wastes of the region of the Gila, and Southern Arizona generally, upon the colors of the species found there. A light, dull, apparently faded condition of plumage, in which some shade of gray is a predominant tint, and all lines and streaks are more or less obsolete in character, is met with in numerous instances, forming true local races or varieties. In other cases[†] the specific characters which distinguish birds of this middle southern province from other closely allied species, partake in a measure of this peculiarity.

Our knowledge of the Ornis of Arizona has been hitherto chiefly obtained from the collections made by the naturalists attached to several of the United States Government Surveys of various regions of the West. The expeditions along the 35th and the 32d parallel passed through different portions of the Territory; the Mexican Boundary Survey along its southern border; that of the Colorado passed up the river to the head of navigation. The first mentioned of these, under Capt. A. W. Whipple, with Dr. C. B R. Kennerly and Mr. H. B. Möllhausen as naturalists, passed very near the present site of Fort Whipple; and its collections agree most closely with my own. Collections of some private individuals have added materially to the results of these Explorations; especially those of Dr. J. G. Cooper, who spent several months at Fort Mojave, on the Colorado River, in latitude 35° N. To the observations and collections of this gentleman I shall have frequent occasion to allude; and I am indebted to him for free access to his MSS. notes, which are of special interest and value, not only as adding some species to my list, but as affording an opportunity of comparing the birds of Fort Whipple with those of a point in the Colorado valley, at nearly the same latitude; whereby the effect of the differences in physical geography is finely elucidated. My own observations, made during the sixteen months I resided in Arizona, extend over the Territory from east to west, chiefly near the line of the 35th parallel; and along the valley of the Colorado from Fort Mojave to Fort Yuma. It was chiefly at Fort Whipple, and the mountainous region of that vicinity, that my collections were made. This particular locality possesses a rich and varied Avifauna; numerous features of which are quite peculiar, as might be expected from the following facts regarding its situation and relations.

Fort Whipple is very nearly in latitude 34° 30′ N., longitude 112° W. (from Greenwich.) It is difficult to give an estimate of the altitude of the vicinity with anything more than approximate accuracy, in consequence of the broken and varied nature of the surface. It may be stated, in round numbers, as between 4000 and 5000 feet; but in several directions, and more particularly to the southward, there are confused masses of short mountain ranges or abrupt isolated peaks, which rise far above the level indicated by the preceding figures. The altitude of the San Francisco mountains, about sixty miles a little east of north of Whipple, has been fixed at about 12,000 feet. The main point of interest which attaches to this particular locality—Fort Whipple—

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[*] The *Tetraonidæ*. I have never seen nor heard of a single species of grouse in Arizona. But the northern portions of the Territory are so imperfectly explored that it is not safe to assert their entire absence. Dr. J. G. Cooper has seen the *Centrocercus urophasianus* on the Mojave River; the southernmost point, I believe, from which it has thus far been recorded.

[†] Of which *Harporhynchus Lecontei* or *crissalis*, as distinguished from *H. redivivus* of the Pacific coast, is a good example.

is that it is nearly upon the dividing line between two tracts of country quite diverse from each other in those points which chiefly affect the distribution and migration of species. A single day's journey to the southward gives us changes in the birds, so great, that I do not hesitate in comparing the difference to that which exists between the Middle Atlantic and the Gulf States, in the eastern Province. Very numerous species,* not detected at any season at Fort Whipple, are yet found abundantly within fifty miles to the south and southwest. At the same time the locality is a true component of the elevated and cold regions to the northward, and assimilates in this respect to Utah and Nevada. Intermediate in situation between the two great valleys of southwestern United States—those of the Rio Grande and Colorado Rivers,—it draws tribute in a measure upon each of them, though, as might be supposed, vastly more from the latter than the former. In this connection I may advert to an interesting point, which I consider as quite probable, though contrary to the usual laws of migration; viz., that many of the birds of the Colorado valley, which are there winter residents, instead of migrating far to the north in spring, by turning simply to the eastward, find in the region of which Fort Whipple is the southern limit the conditions necessary for breeding grounds. That such is a fact would seem to be indicated by comparing the forms common to both Mojave and Whipple; the summer residents or spring migrants of the latter place being usually winter residents at the former locality; but can only be incontrovertibly proven by showing that some species wintering at Mojave are not found directly north of that point in summer; and that they do breed in the Whipple mountains.

The seasons are well pronounced at Fort Whipple, and do not differ notably from those of the Middle Atlantic States. This enables us trenchantly to divide those of its birds which are not permanent residents, into summer and winter residents, and migratory species passing through in the spring and autumn. And I have noticed in many instances that the times of arrival and departure of non-residents are strikingly similar to those of the migratory species passing through Washington, D. C. Quite the reverse is the case in southern Arizona; where the protracted heat and drought of a long summer, which encroaches on intermediate seasons, disturbs the regularity of migration; or even entirely takes away from some species the migratory impulse.

The immediate vicinity of Fort Whipple is admirably adapted to ornithological pursuits in the very varied character of surface presented within the compass of a day's walk. Pines constitute the main feature of the Sylva, covering all the mountains down to what may be considered as the average altitude of the locality. An extensive undulating plain stretches to the northward, partially grassy, partially covered with the characteristic shrubs of the country. Ranges of broken low hills, sparsely covered chiefly with several species of dwarf oak, or so nearly naked as to be little more than huge masses of metamorphic rocks, attract their share of species. The head of one of the forks of the San Francisco River flows past; at times a considerable stream, but usually dry. The vegetation along this, as well as all other water courses of the Territory, has as its most prominent element the ever present *Populus moniliferus;* together with species of *Salix*, *Prunus*, *Castanea*, etc., the bases of which trees are as usual tightly sewn together by a tangled matted network of rank undergrowth; the whole forming a tract peculiarly yielding, as every ornithologist knows, of variety and value in specimens. A small rather open swamp near by affords several species, which, but for its presence, would not form a part of the birds of the locality.

By adding to the species observed at Fort Whipple, and characteristic of that locality, such others as have been ascertained to inhabit any portion of the Territory, the subjoined list becomes an exposition of the present state of our knowledge of the Arizonian Ornis. I have included no species in the list which has not actually been detected in the Territory, or which must necessarily be found there, from the known range of its habitat; but frequent reference is made to species, not yet recognized as components of the Arizonian Avifauna, which in all probability are hereafter to be detected. In view of the favorable circumstances attending the preparation of the list, I do not think that very many species remain to be added to it. Still, as my operations were conducted at the most imminent personal hazard from the continued presence of hostile Indians,—the wily and vindictive Apachés—which always cramped, and at times necessitated entire cessation of investigations, it may be perhaps that some species have been overlooked; and I have only the same excuse to offer, for some other shortcomings, of which no one can be more fully aware than myself. I have taken care to eliminate the Whipple birds, as contradistinguished from all others of the Territory, in order that attention may be drawn to their peculiarities; considering the Fauna of any natural geographical region as more interesting and instructive than that comprised within arbitrary political boundaries, since the latter almost always include fragments of two or more diverse Faunas; of which fact the very region now under discussion affords an example. The Whipple species are preceded by an uninclosed number; all others have their number in parenthesis. It has been my aim merely to add to the remarks elucidative of the distribution of the species, such purely technical observations, comparisons of closely allied forms, descriptions of immature or little known states of plumage, as seemed quite pertinent to the subject. In a few cases synonymy is introduced for reasons which will be obvious. Except in a few instances of special interest I have not touched upon the natural history proper of the species, reserving for future elaboration the mass of ornithobiographical notes which I have taken care to accumulate. All remarks are to be understood as referring to the species as observed at Fort Whipple, and by myself, except when the contrary is explicitly stated.

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* For example: *Chordeiles texensis*, *Pyrocephalus mexicanus*, *Catherpes mexicanus*, *Vireo pusillus* (n. sp.,) *Pipilo Abertii*, *P. mesoleucus*, etc., etc.

VULTURIDÆ.

1. CATHARTES AURA (L.) Illig.

Summer resident; abundant. Arrives last week in March; remains until latter part of October. Resident in the southern portions of the Territory.

(2.) CATHARTES CALIFORNIANUS (Shaw,) Cuv.

Resident in Southern Arizona. Individuals observed at Fort Yuma, in September, 1865.

FALCONIDÆ.

3. FALCO (TINNUNCULUS) SPARVERIUS L.

Resident; very abundant. In highly-plumaged spring birds, the cere, the feet and the edges of the eyelids are bright vermilion, not yellow: the claws and bill bluish black.

4. FALCO (HYPOTRIORCHIS) COLUMBARIUS L.

Common; resident. "A specimen taken by me at Fort Mojave is remarkable for its light colors" (*Cooper*). A light, dull, faded condition of plumage has been already adverted to as characterizing, in many instances, birds from the Gila and Colorado Valleys.

In the immense series of "Pigeon"-Hawks which I have examined from all parts of the West, I find a few specimens which constantly differ, to a marked degree, from any and all of the exceedingly diverse plumages under which the typical *F. columbarius* presents itself. These specimens are invariably much larger than any others in the series; are much lighter colored, (yet not dull or faded,) and differ constantly in the increased number of light and dark bars on the tail. Compared with a European specimen of

Falco æsalon, they agree in every particular. I think it most probable that future careful research will demonstrate satisfactorily the existence of a species hitherto usually confounded with some of the protean plumages of *F. columbarius;* but quite distinct from the latter, and doubtless referrible to the European type above mentioned. In fact, a *Falco æsalon* has been quoted by Townsend and Nuttall as from the northwestern portions of the United States; though not usually recognized by later ornithologists.

(5.) FALCO (HYPOTRIORCHIS) FEMORALIS Temm.

South Arizona, near the Sonoran border. Specimens were obtained by Lieut. J. G. Parke's Expedition along the 32d parallel; and by the Mexican Boundary Survey.

It is quite possible that the *F. aurantius* Gm. extends northward through Sonora into the southern portion of Arizona.

6. FALCO POLYAGRUS Cassin.

? Falco mexicanus,[*] "Licht. Mus. Berol.," Schlegel, Abhandl. Geb. Zool. u. Vergl. 1841, p. 15. Schlegel, Falcones, Mus. d'Hist. Nat. Pays-Bas, 1st, 1862, p. 18.

Falco (Gennaia) polyagrus, Cassin, Birds N. A. 1858, p. 12.

Sparingly distributed throughout the Territory. Not observed at Whipple, though doubtless to be found there. Colorado Chiquito River, *Kennerly*.

(7.) ACCIPITER COOPERI Bon.

This generally distributed species is found throughout the Territory.

8. ACCIPITER MEXICANUS Swains.

Common, resident. Iris, cere, legs, and feet light yellow. Bill bluish black. Claws black.

I have seen young birds of this species, reared by hand from the nest, so thoroughly domesticated as to come to their master on being whistled for, and perch upon his shoulder, or follow him when shooting small birds for their food. They were allowed entire liberty. Their ordinary note was a shrill and harsh scream; a low, plaintive, lisping whistle was indicative of hunger.

The shape of the tail of this species is decidedly less rounded than that of *Cooperi*, and is a feature of considerable value in distinguishing the female *Mexicanus* from the male *Cooperi.*

9. ACCIPITER FUSCUS (Gm.) Bon.

Resident. Abundant throughout the Territory.

10. BUTEO "MONTANUS" Nuttall.

B. montanus, Nuttall, Manual, 1840, i. p. 112; and of later American writers generally: equals *B. borealis* from Western North America.

B. borealis, (Gm.) Gray, Genera, i. 1849, p. 11. Bryant, Remarks on Variations of Plumage of *Buteo borealis*, etc., in Pr. Bost. Soc. Nat. Hist. for 1861: considers *montanus* Nutt., *calurus* Cass., and probably also *Cooperi* Cass., as referrible to *borealis.*

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[*] I think it very likely that *polyagrus* is not the first distinctive name this Hawk has received. The description of *Falco mexicanus* by Schlegel, as above cited, is substantially as follows:—"Wing 11.50 to 13; tail 6.50 to 7.50; legs finely scaled, feet yellow; above brown, paler on the tail; head and nape edged with rusty brown; quills with rust-colored spots; stripe through the eye, spot on nape, and middle of auriculars whitish; beneath white, each feather with a narrow blackish drop-shaped spot; large lateral feathers covering flanks brown, with some rust-colored transverse spots. The young bird has the edges of the feathers above light, the spots below larger, and the feet greenish yellow." A fuller description is in the first number of Dr. Schlegel's Catalogue of the Pays-Bas Museum, above cited. These descriptions are pertinent to *F. polyagrus* in most respects; but, in view of some discrepancies, (color of the legs, which, in *polyagrus*, are light dull blue, etc.,) I do not wish, at present, at least, to make the change of names, though such a procedure may hereafter be considered necessary. Mr. Cassin himself refers (B. N. A., 1858, p. 12,) to this name of Dr. Schlegel's, as very probably the first designation of the species.

B. Swainsoni, Bonaparte, Conspectus, i. p. 19. Cassin, Birds Cal. and Tex. i. p. 98 (1853); but not of Cassin, B. N. A. (1858).

Falco buteo, Audubon, Orn. Biog.; Sw. & Rich. F. B. A., according to Cassin.

The most abundant and characteristic species of the larger Hawks; resident, but particularly abundant during the winter months. It may be readily recognized at any distance, when flying, by the very dark-colored area presented by the lesser under wing coverts, sharply contrasted against the very light colors of the rest of the under surface of the wings. The iris is clear light brown; the bill bluish black; the cere, legs and feet light yellow.

In the Proceedings of the Boston Society of Natural History for 1861, appeared a paper by Dr. Henry Bryant, on the variations of the plumage of Western North American *Buteones;* in which facts are elicited tending to demonstrate that nearly all the species enumerated as valid by Mr. Cassin, in 1858, may be reduced to two. One of these, of which *borealis* Gm may be taken as the type or parent stock, and for which the name must stand, is large and muscular, with a strong bill, long stout tarsi, and a rounded wing. Here Dr. Bryant would range *montanus* Nutt., *calurus* Cass., and probably also *Cooperi* Cass.; together with a specimen in the Philadelphia Museum, which has been labelled and usually called *Harlani.* The other species is distinguished by its smaller size, more slender form, longer and weaker tarsi, and more pointed wing. *Harlani*[*] Aud. is considered as the first name of this species; and to it are referred *Swainsonii*,[†] *Bairdii* of Hoy [‡] and of Cassin; *insignatus*,[§] Cassin, and *oxypterus* [||] Cassin. Dr. Bryant gives careful measurements of these supposed species, having access to the types of many of them, and finds that, if we are to take size and proportions alone as indicative of specific validity, we can admit but the two species he characterizes; while, if we are to be guided by color, we cannot avoid still further increasing the number of species to be recognized to such an extent, that (together with the other undoubted species, such as *lineatus*, *pennsylvanicus*, etc.,) we should have a total of twenty-three inhabiting North America.

It cannot be denied that our constantly increasing knowledge of the distribution of North American *Buteones*, and of the "theory of variation" which is applicable to them, decidedly tends towards a confirmation of Dr. Bryant's views. Nevertheless, I am by no means prepared to accept without reservation the extreme conclusions arrived at. I prefer, at present, to enumerate the species—or varieties, if they are only such—as determined by Mr. Cassin; considering the names given as at least indicative of strongly marked, and apparently geographical, though perhaps not permanent, varieties.

11. BUTEO "CALURUS" Cassin.

B. calurus, Cassin, Pr. A. N. S. Ph. 1855, p. 281; and B. N. A. 1858, p. 22.

"*B. borealis* Gm." Bryant, l. c.

Resident at Fort Whipple, and by no means rare. Specimens taken in the winter of 1864—5, and in April following. Orig. No. 1246; ♀. Length 23·75; extent 55·50. Iris light yellow. Bill dusky bluish horn. Cere dull yellowish green. Mouth livid flesh color. Legs and feet chrome yellow. Claws black.

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[*] "*Harlani* Aud.," of which the type is in the British Museum, is given by Gray (Cat. Brit. Mus. *Accipitres*) as *borealis*. If such be the truth, that Audubon's species was founded upon the fuliginous state of plumage of *borealis*, then *Swainsoni* Bp. is the first distinctive name of the smaller of the two species recognized by Dr. Bryant.

[†] Of Bonaparte, Comp. List, 1838, p. 3, as defined by Cassin, B. N. A., 1858, p. 19.

[‡] *B. Bairdii*, Hoy, Pr. A. N. S. Ph. vi. 1853, p. 451.—Cassin, B. of Cal. and Tex. pl. 41.—Idem, B. N. A., 1858, p. 21.

[§] *B. insignatus*, Cass., B. of Cal. and Tex., 1854, p. 102, pl. 31.—B. N. A., 1858, p. 23.

[||] *B. oxypterus*, Cass., Pr. A. N. S. Ph. vii. p. 282.—Id. B. N. A., 1858, p. 30.

My specimens have a large pectoral area dark chestnut brown, not very different in color from the superior aspect of the tail. I have seen other specimens from Fort Tejon, Cala., in which the breast is still brighter chestnut, in marked contrast to the fuliginous brownish black of the rest of the plumage. Utah, New Mexico, Arizona and California seem to constitute the special range of this species or variety.

B. "*Cooperi*" has only been taken from Southern California, (Santa Clara County, *Cooper*,) and, as but a single specimen is known, it is impossible to decide with certainty upon its relations to *borealis.*

(12.) BUTEO "HARLANI Audubon."

Individuals identified with this supposed species of Audubon by Mr. Cassin and Mr. Lawrence are from New Mexico and California; so that the bird necessarily ranges over the intermediate ground of Arizona.

Dr. Bryant considers that the specimens thus identified present nothing incompatible with their being regarded as a variety of *borealis.* And it is quite probable that the specimen upon which Audubon himself based the name "*Harlani*" is really referrible to a state of plumage of *borealis.* This must be finally determined by examination of the type in the British Museum. But the name "*Harlani* Aud." is employed by Dr. Bryant in his paper to designate a species radically distinct from *borealis* in all its variety, and is the one to which the three following names are by him referred.

13. BUTEO "SWAINSONI" Bonaparte.

B. Swainsoni, Bp. Comp. List, 1838, page 3. Cassin, l. c.

B. vulgaris, Audubon; Swainson & Richardson; but not of European authors.

B. Harlani, Bryant, l. c. (Provisionally adopts the name, proposing to accept that of *Swainsonii* Bp. in event that *Harlani* Aud. proves to be a variety of *borealis.*)

A species or variety of extensive distribution throughout the West. Colorado Chiquito River, Ariz., *Dr. C. B. R. Kennerly.* I never met with it at Fort Whipple, though, beyond a doubt, it is to be found there.

Some of the states of plumage of this bird are so exceedingly similar to those of *B. vulgaris* of Europe, that it has been thus malidentified by certain American writers. See Cassin, B. N. A., pp. 19, 20, 21, for elucidation of changes of plumage, geographical distribution, and synonymy.

(14.) BUTEO "OXYPTERUS" Cassin.

B. oxypterus, Pr. A. N. S. Ph. vii. 1855, p. 282. Idem, B. N. A. 1858, p. 30.

B. Harlani Bryant, l. c.

Not actually detected within the limits of the Territory; but the original locality whence the type of the species was described is so near the borders of Arizona as to render it most probable that the species will be hereafter detected. (Fort Fillmore, N. M., *Dr. T. C. Henry.*)

(15) BUTEO "INSIGNATUS" Cassin.

B. insignatus, Cassin, B. of Cal. and Tex., 1854, p. 102, pl. 31. Cassin, B. N. A., 1858, p. 23.

B. Harlani, Bryant, l. c.

The known range of this species or variety includes Arizona.

The bird first characterized by Hoy and subsequently by Cassin as *B. Bairdii* (by Dr. Bryant also referred to "*Harlani* Aud.,") has not, to my knowledge, been taken as far south as Arizona, though detected at various other points in the West.

16. *Buteo elegans* Cassin.

Rare; and only known as an inhabitant of Arizona from a single specimen taken on the Colorado Chiquito by Dr. Kennerly. I am informed by Dr. Cooper that it is an abundant bird in Southern California. It will doubtless be hereafter found at Whipple.

This fine species is radically different from any of the foregoing *Buteones*, belonging to a group subgenerically distinct, partially characterized by a different amount of feathering of the tarsi. Among North American species it is only intimately related to *lineatus*, from which species the study of its neossology readily enables us to distinguish it.

(17.) BUTEO ZONOCERCUS Sclater.

B. zonocercus, Sclater, Trans. Zool. Soc. Lond. 1858, p. 263.

A single specimen, procured on the Gila River, Sept. 24, 1864. The species is doubtless restricted in its northern range to the warm valleys of the Gila and Lower Colorado.

This interesting Mexican species was first found within the limits of the United States by the indefatigable Cooper, who procured a specimen in Santa Clara County, California. Without being aware of this at the time, I rediscovered it myself in Arizona; an additional example of what has occurred in several instances in our operations in the West, during the greater part of which each was ignorant of the other's exact whereabouts and labors. I must yield to my friend the priority of discovery, although I have the pleasure of first presenting the species in an American publication as an addition to the United States Fauna.

18. ARCHIBUTEO FERRUGINEUS (Licht.) Cassin.

Buteo ferrugineus, Lichtenstein, Trans. Acad. Berlin, 1838, p. 428.
Archibuteo ferrugineus, Cassin, B. N. A. 1858, p. 34.
Archibuteo regalis, Gray, Genera, i. pl. vi. (desc. nulla.)
Buteo Californicus, A. J. Grayson, Hutchins' Cal. Mag. 1857.

This large, noble, and by far the handsomest of our Falconines, hitherto only known from California, is found quite abundantly about Fort Whipple, especially in winter. It is probably a permanent resident there. It chiefly frequented meadows, plains and more open woods. I observed it to be quite numerous on the dry, level, grassy plains of Southern California. I usually found the stomach filled with *Geomys*, *Arvicola*, or *Hesperomys*. In life it may always be readily recognized by its conspicuously white under parts, contrasted with its dark chestnut tibiæ and reddish back.

No. 1114, taken Dec. 2, 1864. Male. Length 22·50; extent 54·50; wing 16·25; tail 9·50; tibia 4·80; tarsus 3·25; middle toe 1·25; its claw ·75; outer toe ·85; its claw ·55; hallux 1·00; its claw 1·00; bill along culmen 1·50; along gape 2·00; its depth at base ·90. No. 1115, taken Dec. 6, 1864. Female. Length 23·25; extent 56·50; wing from carpus 16·75; tail 10·00; tarsus 3·40; the other measurements not differing notably from those of the male above given.

When perfectly adult, the whole under parts, from chin to under tail coverts, inclusive, are pure white. In the majority of specimens, however, there will be found a few slender, sharp, shaft lines of black on the chin; which, as they pass down the breast, become broader, and tinged with chestnut. Usually, also, the feathers of the flanks have small, isolated, interrupted and incomplete bars of chestnut and black. Less mature specimens exhibit a continuation of these bars quite across the lower part of the abdomen, and they are so broadened as to form somewhat hastate spots. Some of the feathers of the flanks are tipped with chestnut. The chief other variations in adult birds seem to be a greater or less intensity of the deep color of the tibiæ, a lighter or darker shade of ferrugineous on the back, and a fainter or more decided wash of pearl grey on the superior surface of the tail.

The bill is dark leaden bluish black. The mouth is light purplish flesh color, becoming livid bluish on the corneous portions. The cere, edges of the commissure, tarsi and toes are bright chrome yellow. The claws are black. The naked skin just over the eye is greenish, tinged with crimson posteriorly. The iris of adult birds is fine light yellow; of young ones brown, more or less ochraceous with increasing age.

The following brief anatomical notes may be of interest, as the species has not hitherto been dissected. They relate chiefly to the alimentary canal:

Anatomical Notes. On the roof of the mouth a narrow but prominent median ridge runs from the very apex of the upper mandible to the fissure of the posterior nares, widening, becoming less sharply defined, and more obtusely papillated towards its posterior extremity. At a point about a third of its length from its termination it is crossed at right angles by a very short, transverse ridge, which connects it on either side with a lateral ridge. These lateral ridges run parallel with each other as far back as the Eustachian orifice, and are papillated for their whole length, which papillæ are anteriorly sparsely distributed, short, stout and obtuse; posteriorly gradually becoming thick-set, long, soft and acute. The ridges themselves terminate abruptly in the smooth, soft, mucous membrane of the posterior portions of the palate, measuring 1·60 inches in length. That portion of the palate between these ridges and the nasal fissure is roughened by numerous short, blunt tubercles. From the extremity of that portion of the nasal fissure which has soft, elevated, approximable ridges, there runs outwards on either side a fringe of delicate papillæ. Rather more than the posterior third of the nasal fissure stands broadly open, and has hard, immobile, bony edges. over which the mucous membrane is tightly and smoothly stretched. The nasal aperture measures in total length 1·25. Just posterior to it, on the median line of the palate,is the opening of the Eustachian tube, situated in the centre of a smooth, somewhat vaulted space. In shape it is oval, and its edges, though somewhat mobile, are not completely approximable. From its posterior extremity, on either side, a fringe of soft papillæ curves obliquely outwards and forwards. The rest of the palate is not noticeable. Posteriorly it is very soft, and numerous vessels may be seen ramifying beneath its mucous membrane. Anteriorly it. becomes harder and more fibrous, and finally, towards the tip of the bill, quite corneous.

The tongue is large and fleshy, its tip obtusely rounded, its lateral outline convex. its dorsum with a median furrow, its under surface with a corresponding ridge, its posterior extremity deeply bifid, the edges of the fork corneous, and armed with stiff, hard, papillæ. The outermost of these papillæ is greatly developed, forming a large, strong, acutely pointed spine. The tongue is ·75 long; its laryngeal fissure ·50. The elevated space just posterior to the rima glottidis is pure white, and thickly beset with stiff, acute papillæ, some of which have black tips.

On the floor of the mouth, on either side of the frenum linguæ, at the apex of the angle formed by the divergence of the inferior maxillary rami, lies a thin, flattened, broadly oval gland, a third of an inch long, of a deep purplish red color. Its surface is studded with numerous depressed punctæ, the orifices of the emunctory ducts.

The trachea is 5·50 inches long, and ·45 wide at its superior extremity; rings about 90 in number. It is broad and much flattened superiorly, but towards the lower larynx becomes more cylindrical. The lateral muscles are well developed. The lower larynx, as usual in this order, is quite simple. The bronchial half-rings are 15 in number, all small, soft and weak.

The œsophagus is extremely capacious and dilatable. The distended crop is irregularly ovoid in shape; 3·50 long by about 2·25 wide.

The proventricular glands form a complete zone, with a uniform width of 1·25. The proventricular parietes is about one-twelfth of an inch in thickness. The individual glands are large enough to be readily discernible to the naked eye; closely aggregated in the parenchyma of the parietes. Their orifices are plainly visible, thickly studding the whole internal surface of the organ; and during active digestion the mucous membrane is covered with their thick, glairy, viscid secretion.

The fully distended gigerium occupies about three-fourths of the abdominal cavity. It reaches within an inch of the rectum, inclining towards the left side of the abdomen, with the internal parietes of which it is in close approximation. The intestines all seem crowded backwards, downwards and to the right. There is no apparent constriction between the proventriculus and gigerium; but from the termination of the œsophagus proper the calibre of the canal regularly increases, so that the two stomachs together form a pyriform mass, its large end directed backward. The walls of the gigerium are thin; the mucous membrane quite smooth. The pylorus is nearly circular in shape; its aperture quite open and direct. It is guarded by elevated folds of mucous membrane, forming partial valves. The opening is situated about the middle of the right side of the gizzard.

The duodenal fold is between three and four inches in length. It curves around the right side and fundus of the gizzard, separating the latter from the rectum, and thence returns upon itself to its point of departure.

The intestine then curves around the dorsal aspect of the gizzard until near the median line of the body, whence it descends nearly in a straight line, in the right iliac fossa, almost as far as the rectum. After numerous short convolutions in this region, it again ascends, on the right of the spine, till it regains the dorsal aspect of the gizzard near the origin of the duodenal fold. It then traverses the gizzard from right to left, and descends in the left iliac fossa, half way to the rectum, when abruptly returning on itself along the left side of the spine, it forms a loop about an inch long. Here, after again abruptly reversing its direction so as to point directly backwards, it terminates, at the cœca, in the colon.

There are two cœca, each about one-eighth of an inch long, very small, perfectly straight, obtusely rounded at their extremities, and closely adherent by cellular tissue to the walls of the colon.

The colon is very short, being less than two inches in length. It is a perfectly straight tube, running directly backwards along the median line of the sacrum. Its diameter does not exceed the average of the "small" intestines, and is less, in fact, than that of the duodenum. Between the ischia it expands into a large, nearly globular, though somewat pyriform rectum, about an inch in length. A spincter partially guards the recto-colal passage.

The pancreas in the specimens examined was not, as usual, slender and elongated, and received in the fold of the duodenum; but was short, thick and obtuse, and closely applied to the right side of the gizzard.

The spleen measures a third of an inch in length, and is of a flattened, ovoid shape, and dull reddish purple color. It rests on the dorsum of the gizzard, a little to the right, and high up near the proventriculus.

The liver is large, and its two lobes are of about equal size. They lie one on each side of the abdomen, their commissure being directly on the median line of the body. Their superior concave surfaces combined are in apposition with the gizzard and intestines; their convex inferior surfaces are accurately moulded to the thoracic parietes. Anteriorly they diverge to receive the apex of the heart between them; posteriorly they are in close mutual apposition.

The total length of the alimentary canal from pylorus to anus is about 40 inches.

19. Archibuteo lagopus (Brünn.) Gray.

Rare. A single specimen taken in winter. None others met with.

(20.) Elanus leucurus (Vieill.) Savigny.

The known range of this Hawk includes Arizona: though I am not aware that any examples have actually been brought from the Territory.

(21.) Nauclerus furcatus (L.) Vig.

I have been on several occasions assured of the existence of this Kite in Arizona, by reliable if unscientific observers. I have myself never seen it.

Numerous facts regarding the geographical distribution of this species indicate that it is one of several, which, as noted by Mr. Cassin, (B. N. A., p. 37,) range much further north in the western than in the eastern portions of the continent. I have met with it as high up as Fort Leavenworth, on the Missouri River.

(22.) Ictinia Mississippiensis (Wils.) Gray.

As a bird of New Mexico, this species is doubtless to be detected in south eastern Arizona.

It is probable that the *Asturina nitida* remains to be discovered near the Sonoran border.

23. Circus hudsonicus (Linn.) Vieill.

An abundant species throughout the Territory, chiefly in its more watered portions.

24. Haliætus leucocephalus (L.) Savigny.

Bald Eagles were frequently observed at different seasons in the vicinity of Fort Whipple.

25. Aquila canadensis (Linn.) Cassin.

Rare; but occasionally observed at different seasons: warranting the belief that it is a permanent resident of the mountains around Fort Whipple.

(26.) Pandion Carolinensis (Gm.) Bonap.

Observed on the Colorado River.

(27.) Polyborus Auduboniі Cass.

P. Audubonii, Cassin, Pr. A. N. S. Ph. 1865, p. 2, which see for synonymy and specific characters.

Apparently not a rare bird of the southern and western portions of the Territory. "Rio Gila and Colorado, near Fort Yuma; abundant;" *Heermann.*

(28.) Craxirex unicinctus (Temm.) Cass.

Taken by Kennerly and Möllhausen on the Colorado River. (See P. R. R. Survey, Vol. x. pt. iv. p. 20.) Probably a permanent resident of southern Arizona.

[Note.—The following extract from my Journal may be of interest: "Camp on San Francisco River, near mountains of same name, July 13, 1865. A pair of exceedingly large rapacious birds sailed over camp this evening. Their flight was easy, graceful, firm, and sustained for a long time with no visible motion of the wings, which latter were exceedingly long, pointed and acutely angulated at the carpal joint. In size they about equalled Bald Eagles; but the shape of the wings and mode of flight were very different and intimately resembled those of the Turkey Vultures. The entire under parts of these birds were *pure white*; their upper parts were not visible." I could not procure a specimen, nor can I now refer the birds to any species known to me, unless, possibly, they were the *Sarcoramphus papa*; a species which may be included hereafter in our Fauna, though its presence within our limits has not yet been positively substantiated.]

STRIGIDÆ.

29. Strix pratincola Bonap.

Common. Resident. One of the most abundant Owls of the Territory. I have frequently observed it at midday; on one occasion it was preying upon Black-birds in the middle of a small open reed swamp.

30. Bubo virginianus (Gm.) Bonap.

Common; resident. My specimens incline towards Mr. Cassin's variety *pacificus*; which was also taken on the Colorado Chiquito, by Dr. Kennerly.

31. Scops McCalli Cassin.

Taken at Fort Mojave by Dr. Cooper, who thinks it is scarcely distinct from

S. asio. The latter species is doubtless distributed throughout the Territory. I have not personally met with it. Dr. Kennerly procured *McCalli* on the Colorado Chiquito River. It is therefore to be enumerated among the Whipple birds.

32. OTUS WILSONIANUS (Lesson.)

Sparsely distributed throughout the Territory. Colorado Chiquito, *Kennerly.*

33. BRACHYOTUS CASSINI Brewer.

Common throughout the Territory. I saw a surprising number on different occasions along the Colorado River, in the day time.

34. NYCTALE ACADICA (Gm.) Bonap.

The known range of this little Owl includes Arizona; though I have not seen specimens from within the limits of the Territory.

In addition to the preceding *Strigidæ* a species of *Athene* occurs in Arizona; but whether *hypogea* or *cunicularia* I cannot now determine positively. The *Syrnium occidentale* Xantus, (Pr. A. N. S., Ph. 1859, type from Fort Tejon) will very probably be found in the Colorado Valley. Dr. Cooper has obtained *Nyctale albifrons* on the Sierra Nevada of California, which causes Arizona to fall within its now known range.

35. GLAUCIDIUM GNOMA Wagler.

Glaucidium gnoma, Wagler, Isis v. Oken, xxv. 1832, p. 275. (Mexico.) Cassin, in Baird, B. N. A., 1858, p. 62. (Oregon, Cal. etc.)

"*Strix passerinoides* Temm." Audubon, Orn. Biog. v. p. 271, pl. 432, fig. 4, 5; (not the original species as descr. and fig. by Temm. Planches Color. No. 344, which is South American, and probably the same as *S. infuscata* Temm.)

"*Surnia passerinoides* Temm." Audubon, B. N. A., 8vo. ed. i. p. 117, pl. 30.

Glaucidium infuscatum, Cassin, Birds Cal. and Texas, 1853, i. p. 139. (Name from *Strix infuscata* Temm., Man. Orn. 1820, i. p. 97; which is S. Amer. species, probably the same as *passerinoides* Temm.)

Glaucidium californicum, Sclater. P. Z. S., 1857, p. 4; in text; proposing name if N. Am. species is not true *gnoma* Wagl.

My numerous specimens present no material discrepancies from Wagler's original description in the Isis. I think it far best, with our present information on the subject, to refer the Oregonian, Californian and Arizonian bird to this species of Wagler, as Mr. Cassin has done. Should the Mexican bird ever be found to differ from the North American, the latter is to be called *G. californicum* after Sclater, as above quoted.

My citations of Audubon's and Cassin's works, (ut supià) all refer to the North American bird, though these authors erred in applying to it either of the names *infuscatum* or *passerinoides*, both of which refer to South American species, in all probability identical with each other, and quite distinct from our bird. Mr. Cassin himself corrects his error in the "Birds of North America;" and with this gentleman's later views of the synonymy I entirely agree.

The sexes of this little Owl differ much in size. A male before me measures only 5·50 X 14·50, but the tail feathers are quite imperfect; had they grown out fully the bird's length would have been about 7.00. The female is larger, measuring 7·50 X 15·25. The male is rather darker colored than the female; the spots above more numerous and smaller; the imperfect nuchal collar of black and white much better defined than in the other sex, where it is almost obsolete. In both sexes the iris is bright yellow; the mouth light purplish flesh; the bill, cere and feet light greenish yellow; the soles chrome yellow; the claws black.

A diurnal and crepuscular rather than a nocturnal species. The stomachs of those individuals examined, contained the remains of orthopterous and coleopterous insects. A permanent resident at Fort Whipple, but not very abundant.

MICRATHENE Coues, nov. gen.

Generic Characters.—Bill small and weak, compressed at the base, where it is densely covered with recurved feathers terminating in stiff bristles; outline of culmen and gonys moderately convex; lower mandible obsoletely notched. Facial disk not conspicuously defined, imperfect behind the eye. Wings exceedingly long; measuring from the carpal joint rather more than two-thirds the total length of the body; much rounded, the exposed portion of the first primary only two-thirds that of the longest one; third and fourth longest, fifth but little shorter, second about equal to the sixth. Tail of moderate length, not graduated: rectrices broad to their very tips. Tarsi of moderate length, feathered only for a short distance below the tibio-tarsal joint: the rest of their extent, and the superior surface of the toes, clothed with bristly hairs. Claws unusually small and weak, moderately curved; the outer one reaching a little beyond the base of the middle one; the inner intermediate between outer and middle ones. Middle toe and claw about as long as the tarsus. Hallux elongated. Of small size, being among the most diminutive of known Owls.

TYPE. *Athene Whitneyi*, Cooper.

With the size and general aspect of *Glaucidium*, this genus differs greatly from it as follows: The bill is smaller, weaker, less strongly hooked and dentulated. The wings are much longer, and the tail much shorter. The tarsus is unfeathered except for a short space superiorly. The claws are so small and weak as to be hardly more than insessorial rather than raptorial in character. The proportions of the tarsus and toes differ decidedly. Nor has it much in common with *Athene*, except the partially denuded tarsi; the relative proportions of the tarsus and toes to each other being quite different in the two genera; *Athene* having the middle toe and claw about two-thirds the tarsus, instead of fully as long. The claws of *Athene* are very long, acute and little curved. While both genera are very long winged, there is a decided difference in the shape of the wing; that of *Athene* being much the most pointed, in consequence of the greater elongation of the first and second primaries. I think it more than probable that *Micrathene* is a truly arboreal genus, like *Glaucidium*, thus differing radically in its habits from the species of *Athene*.

In conversation with me Dr. Cooper intimated his belief that the bird was not a true *Athene*; and my critical examination of his type, made at his own request, amply confirms the accuracy of his opinion.

(36.) MICRATHENE WHITNEYI (Cooper.)

Athene Whitneyi, Cooper, Pr. Cala. Acad. Nat. Sci., 1861, p. 118.

For the discovery of this delicate raptorial gem we are indebted to the indefatigable Dr. J. G. Cooper, so long and well known as an excellent naturalist, who procured the only known specimen at Fort Mojave, April 26, 1861. It is unnecessary to add anything to the accurate description above cited. It is one of the most interesting of the recent additions to our western Avi-fauna.

CUCULIDÆ.

37. GEOCOCCYX CALIFORNIANUS (Less.) Baird.

Rare and seen on but few occasions at Fort Whipple, which is near its northern and eastern limits, though specimens have been taken as far north as the Colorado Chiquito River, by Dr. Kennerly. Very abundant in the more southern and western portions of the Territory. Known as the "Chaparral Cock," "Road runner" and "Snake killer," to the whites; by the Mexicans called "Paisano;" marvellous stories of its powers of killing rattlesnakes and other Ophidians pass current.

Dr. Cooper has found *Coccygus Americanus* in Southern California, and thinks it is yet to be detected in the valley of the Colorado.

PICIDÆ.

38. Picus Harrisii Audubon.

One of the most common and characteristic birds in the vicinity of Fort Whipple.

The iris is brown at all ages; but varies from a clear light reddish brown to a dark blackish brown. The bill and feet are horn-bluish black. The specimens from the same locality hardly vary notably in size, though the male is usually larger than the female. None of my specimens approach in size the immense race found in Arctic America.

No specimens out of a very large series, exhibit the slightest tendency towards the smoky brown tinge, or discoloration of the under parts, seen almost constantly in birds from California and Oregon and Washington Territories; but have the under parts pure white, and usually, too, with no indications of the obsolete lateral and crissal black streaks seen in the race from the Pacific coast. Specimens not in high plumage frequently have the primaries and rectrices gray instead of black; and this gray is sometimes so faded towards the apices of the feathers, as to be almost white.

It is a little singular that in a locality where *P. Harrisii* is resident, and so very common, *P. Gairdneri* should be either not found at all, or so very rare that I did not identify it with certainty during my whole stay; though I am under the impression that I once saw a single specimen.

39. Picus scalaris Wagler.

Picus scalaris, Wagler, Isis, 1829, v. 511. Bp. C. A. 1850, p. 138. Baird, B. N. A., 1858, p. 94; but not of Gambel, which is *P. nuttalli.*

Picus gracilis, Lesson. Revue Zoolog. 1839, p. 90.

Picus parvus, Cabot, Bost. Journ. N. H., 1845, p. 90.

Fort Whipple appears to be about the northern limit of this species. It is not very common there, being only a summer visitant, breeding sparingly; further south, through the Territory and in the Colorado Valley, it is abundant. It does not appear to cross the Colorado Desert into California, (where the *P. Nuttalli* replaces it,) but extends far southward into Central America.

A male shot June 5th has the feathers worn off the belly, as if incubating. Young birds just fledged were taken July 10th. The nest was in the top of a live-oak tree. The heads of the young at this season have rather more red on them than those of the adults.

Iris deep reddish brown; bill dark slaty black; legs and feet horn bluish. The average length is 6·50 inches; some specimens measure nearly 7 inches.

P. Nuttalli seems to be exclusively a coast species, not crossing to the Colorado Valley.

SPHYRAPICUS Baird, 1858.

The genus *Sphyrapicus* instituted by Prof. Baird, in 1858, to replace the preoccupied and therefore untenable *Pilumnus* of Bonaparte, (type *P. thyroideus* Cass.) is a most natural one, widely separated from other genera by singular anatomical peculiarities as well as striking external features. Its North American components are all very closely allied, notwithstanding that Prof. Baird intimates his doubts as to the propriety of referring *P. Williamsoni* here, and Prof. Reichenbach has been inclined to consider *P. thyroideus* as a *Colaptes.* I am familiar with the habits and anatomical peculiarities of all our North American *Sphyrapici* except *S. ruber*, and my study has revealed points so essentially at variance with other *Picidæ*, that I am inclined to institute for the reception of the genus a subfamily *Sphyrapicinæ.*

The genus in question is a xylophagous rather than an insectivorous one. I do not mean that the *Sphyrapici* never eat insects, for coleoptera and their larvæ may often be found in their stomachs. But their main sustenance is the cambrium, or soft, inner, *live* bark of trees, the succulent juices of which they appropriate to their œconomy, rejecting the ligneous, unnutrious fibres in the ordinary method. They are, in fact, true "Sap-suckers," and it is their devastations upon fruit and ornamental trees which have brought the family of woodpeckers into such disrepute among agriculturalists; a class not ordinarily observant enough to discriminate between these birds and the harmless or rather beneficial species of *Picus Melanerpes*, *Centurus*, etc Instead of simply "tapping" trees,—generally their decayed or dead portions too,—to extract the injurious beetles and their larvæ lurking within, the Sphyrapicines denude live branches of their bark, often for an area of several square inches at a time. I have before me specimens of wood thus attacked, from which the bark has been removed from large irregularly shaped spaces; and the result, as might be expected, is exceedingly different from that produced from the simple drilling of little holes by the insectivorous genera. Besides the cambrium, all the species, particularly in the fall, feed extensively upon ripe fruits and berries of all sorts.

The anatomical peculiarities which produce this remarkable difference in habits are very striking, and involve to a greater or less extent the whole lingual, salivary and gastric apparatus. In the tongue itself, however, and its bones, the most remarkable differences are to be seen. The tongue cannot be protruded, as a dart, far beyond the tip of the bill; the amount of extension it is capable of not exceeding a fourth or a third of an inch. This is caused by the great abbreviation of the apo-hyal and cerato-hyal elements of the hyoid bone, which do not reach backwards much beyond the tympano-maxillary articulation, instead, as in *Picus*, *Colaptes*, etc, of being produced so far as to extend over the occiput to the top of the cranium, or even to curve around the orbit of the eye in an osseous groove formed for their reception. The basihyals which support the tongue are also shorter and somewhat differently shaped. The tongue itself is short and flattened, with a superior longitudinal median groove, and a corresponding inferior ridge. Its tip is broad and flattened, and obtusely rounded, and provided with numerous long and soft bristly hairs. All these features are quite diverse from the long, protrudable, subulate, acutely pointed tongue of *Picus*, etc., armed near its tip with a few strong, sharp, short, recurved barbs.

The muscular apparatus for the movements of the tongue differs, of course, in a degree corresponding to these modifications of the hyoid bone. I am inclined to believe, though I have not prosecuted my dissections far enough to speak positively, that there exist differences in the salivary glands, and, perhaps, in the gastric mucous membrane, rendered necessary by the radical diversity of the ingesta.

My attention was first called to these interesting points by a communication from Dr. P. R. Hoy, of Wisconsin, in one of the newspaper periodicals of that State; which I believe was the first published notice of these facts, and that gentleman's observations I have amply confirmed by my own scalpel and field studies.

It is unnecessary to detail the external characters of this genus, as they have already been given in ample detail by Prof. Baird.

40. SPHYRAPICUS NUCHALIS Baird.

S. nuchalis Baird, B. N. A. 1858, p. 103, in text under *S. varius*. Op. cit. App. H. p. 921. (New Mexico.)

Permanent resident. Abundant.

In the adult spring male the whole chin, throat and jugulum are bright red; this color extending on the sides of the lower mandible so as to interrupt the black lateral stripe of the jugulum, which in *varius* continuously borders the red, and invading to a considerable distance the pectoral spot of pure, deep, glossy, greenish black. In the adult female the chin is white, bordered posteriorly by a somewhat semilunar patch of red, not so intense in tint as that of the male, nor so broad. The pectoral black spot, though rather smaller, is equally pure in color. Both sexes invariably have the red crescentic nuchal collar, separated from the red pileum by a distinct line of black. Autumnal birds have the white portions of the upper parts and the belly more or less strongly tinged with lemon yellow, especially noticeable on the abdomen. Birds of the year hardly differ from the adults, except that the pectoral spot is only indicated by a few isolated black feathers scattered through a dull grey area. The nuchal collar is always observable, though its continuity may not be perfect. Independently of age, sex or season, there are great variations in the size and shape of the bill to be observed in large series from different localities.

This is to be considered as a thoroughly established species. In an immense series of skins of both species before me from all parts of North America, there is not one which cannot unhesitatingly be referred to one or the other species.

41. SPHYRAPICUS WILLIAMSONI (Newb.) Baird.

Picus Williamsoni, Newberry, 1857, (Oregon.) *Melanerpes rubrigularis*, Sclater, 1858, (California.) *Sphyrapicus Williamsoni*, Baird, 1858.

Resident. Not uncommon. Exclusively pinicoline in the regions where I have observed it. Ranges from both slopes of the Rocky Mountains to the Pacific, from as far north at least as Oregon. Fort Whipple is probably near its southern limit.

(No. 844, Oct. 13, 1864. ♂.) Length 9·5 ; extent 16·75. Iris dark brown. Mouth pinkish flesh color. Bill bluish black. Feet dull greenish black. Claws black.

This species exhibits the anatomical peculiarities noticed under head of the genus *Sphyrapicus*, and its habits are entirely correspondent.

42. SPHYRAPICUS THYROIDEUS (Cass.) Baird.

Resident. Very rare. Chiefly pinicoline.

The range of this species is now known to include both slopes of the Rocky Mountains, from Oregon to the Rio Grande, and probably it extends through Arizona to the Sonoran border.

Some male specimens have the grey chin more or less suffused with reddish, forming a mental spot something like that of *Williamsoni*. Neither sex appears to have any red about the crown or nape, a very unusual fact if such be invariably the case.

This species is strictly congeneric with *Sphyrapicus varius* in anatomical peculiarities and in habits, and has nothing in common with *Colaptes* beyond some similarity in the pattern of coloration.

Sphyrapicus ruber, as a bird of the whole Pacific Slope of the Rocky Mountains, will most probably be hereafter detected. It seems chiefly, however, a coast species. The *Hylatomus pileatus* is undoubtedly an inhabitant of Arizona.

43. CENTURUS UROPYGIALIS Baird.

Rare, and perhaps accidental in the immediate vicinity of Fort Whipple. A common bird of the Gila and Lower Colorado River valleys. "Abundant at Fort Mojave," (*Cooper*.) A species remarkable for inhabiting the Giant Cactuses, (*Lepidocereus giganteus* and *L. Thurberi*, of Englemann,) whence is derived its provincial name of "Suwarrow" or "Saguaro." Its plumage is often found stained with the juices of these plants. It feeds upon their fruit, but catches insects as well The female is similar to the male, except that she wants the quadrate patch of red on the crown. The absence of the yellow nuchal crescent, and of the yellow at the base of the bill are some of the features that distinguish both sexes from the *C. flaviventris.*

44. Melanerpes formicivorus (Sw.) Bp.

Exceedingly abundant, being the commonest Woodpecker, not even excepting *P. Harrisii*. Resident. Found in all situations.

The tongue of this Woodpecker is rather brushed at the tip, like that of a *Sphyrapicus*, than barbed, as in *Picus*, etc. Still it is exceedingly protrudable, the hyoid bone being well developed.

This species presents variations in the color of the iris rarely equalled. In a great many individuals the iris is pure white, and so it is usually described. But this is not the color in even a majority of instances, for this white is tinged with various colors,—red, blue, yellow or brown. A greater or less admixture of red gives every shade from a clear rose pink to the most delicate creamy white, and these tints are usual in adult spring birds of both sexes. Varying degrees of yellowish or ochraceous are by no means rare. Young birds are rarely found with pure white irides, for the color is usually obscured by a greater or less amount of blue or grey, producing a bluish grey or a "milk white" tint. Rarely an individual is found with dark brown irides. The latter seems to be purely accidental; the admixture of blue to denote immaturity, and the reddish tinge to indicate high spring maturity, in each case quite independently of sex.

The moult, which commences in July, continues for an unusually long period,—until November,—at least in some instances.

Adult birds are very constant both in size and plumage, but, at the same time there is an immense variation in the length and stoutness of the bill in different individuals. The black of the breast, and the lemon yellow on the jugulum have often a few isolated red feathers among them. Some few specimens have white tips and inner borders of the secondaries, but this is unusual. The pileum of young birds has often a bronzy tint, not seen in the adult.

ASYNDESMUS Coues, nov. gen.

Generic Characters.—Bill as long as the head, rather longer than the tarsus, as high as broad at the base, terminally compressed, somewhat decurved; almost colaptine in general aspect. Culmen much curved, tips of bill acute, gonys straight, lateral outline of bill decidedly concave, lateral bevelling scarcely appreciable, lateral ridge distinct, superior and inferior ridges but slightly developed. Wings very long, when folded reaching to near the end of the long tail; fourth quill longest, third and fifth about equal to each other and shorter than the second. Inner anterior claw reaching but little beyond the base of the outer claw. Feathers of the under parts and of a nuchal collar with the fibres on their terminal portion disconnected, loosened, enlarged in calibre, stiffened, almost bristle-like, with a peculiar glistening silicious hardness, destitute of fibrillæ whereby to interlock. Dorsal plumage imbricated, with an intense metallic lustre.

Type. *Picus torquatus* Wilson.

The bill of this genus is quite peculiar, approaching that of *Colaptes* in its length, convexity of culmen, acute tip, and slightly bevelled sides; and resembling that of *Melanerpes* in its sharply defined lateral ridge. The nasal plumuli are long and bristly but not dense. The length of the wing is excessive, and the proportions of the primaries peculiar. The most essential feature is found in the unusual texture of the feathers of the under parts and nuchal collar, which has thus been described: "The fibres of the feathers are longer than usual and remarkably stiff. Those on the terminal third of each feather are of the usual character at the base, or provided with fibrillæ, those of opposite sides interlocking as in feathers generally. The terminal portion, however, of the stem of the fibre is much enlarged and expanded laterally to twice or more the diameter at the root, and converted into quite a stiff bristle, nearly smooth or with slight indications in place of fibrillæ. It is this portion of the feather that is colored," [BAIRD.] The feathers of the nuchal collar also posses these peculiarities. The dorsal plumage is intensely lustrous. The red about the face has a peculiar velvety aspect.

I do not find any name already proposed for this genus, which seems eminently worthy of separation from *Melanerpes*. I had long been of this opinion from examination of skins alone; and since studying the bird in the field, have become quite convinced. My name has reference to the disconnection of the fibres of the feather.

45. ASYNDESMUS TORQUATUS (Wils.)

Picus torquatus Wilson. *Melanerpes torquatas* Bonap. et Auct. *Asyndesmus torquatus* Coues. *Picus montanus* Ord. *P. Lewisii* Drapiez.

Common: resident.

In young birds there is hardly a trace of a nuchal collar, and the upper parts, especially about the head, have very little lustre. The crimson forehead and lores are very illy defined; nor are they trenshantly divided from the hoary of the breast by a black area. The blood-red of the under parts only shows in isolated patches, except perhaps on the abdomen, where it is more or less continuous; the color being of various shades of gray on the breast and sides. The feathers hardly acquire their peculiar character until old enough to have their proper color.

46. COLAPTES MEXICANUS Swainson.

Resident; abundant: found in all situations, and in habits is quite a counterpart of the eastern species it represents in Western North America.

(47.) COLAPTES CHRYSOIDES Malh.

Geopicus (Colaptes) chrysoides, Malherbe, Rev. et Mag. N. H. iv. 1852, 553. Monog. *Picidæ*, ii. p. 262.

Colaptes chrysoides, Baird, B. N. A. 1858, p. 125.

Colaptes Ayresii, Heermann, Parke's Exped. 32° parallel, in the P. R. R. Surv. vol. x. pt. ii. p. 50. Not of Audubon.

This species has been shot at Fort Mojave by Dr. J. G. Cooper, in Feb. 1861, when it was feeding on the larvæ of insects among the *Populus moniliferus*. He found it very shy and wary as all the *Colaptes* seem to be. It doubtless winters in the Colorado valley, though I do not think it leaves the valley to the north and east, as I have never found it among the Whipple mountains.

"*Geopicus chrysoides* Malh." was given by Prof. Baird in 1858 as a synomym, with a query, of his *C. hyridus*. At that time there was not sufficient material available to decide the point; but the impropriety of the reference has since become evident.* The bird is now well known as a common species of Lower and Southern California, and of the Colorado valley, and has been brought from the Sonora line. Very numerous examples are in the Smithsonian from Cape St. Lucas.

"Colaptes Ayresii Aud." of Dr. Heermann's Report, as above cited, is undoubtedly the present species. But the true *Ayresii* of Audubon is a mixture of *auratus* and *mexicanus*, more recently characterized by Prof. Baird as *C. hybridus*.

TROCHILIDÆ.

(48.) TROCHILUS ALEXANDRI Bourc. and Muls.

This species has been taken in the Colorado Desert so near the western boundary of the Territory as to render it exceedingly probable it is a bird of the Colorado River valley, as well as of the coast of Southern and Lower California. But I am not aware that it has actually been taken in Arizona.

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* See descriptions of and remarks upon this species by S. F. Baird, in Pr. A. N. S. Ph. for November, 1859.

Dr. Cooper tells me that the nests which he found on the Mojave River were composed entirely of the soft white downy cotton of *Platanus* and *Salix*.

(49.) Atthis costæ (Bourc.) Reich.

A species generally distributed throughout the Territory, particularly in its southern and southwestern portions. Not taken at Fort Whipple, though observed some fifty miles south. From Bill William's River, *Dr Kennerly*, in February; from Fort Mojave, *Dr. Cooper*. Doubtless winters within the limits of the Territory.

(50.) Selasphorus platycercus (Sw.) Gould.

Numerous specimens seen on the summit of Whipple's Pass of the Rocky Mountains in July, feeding among clumps of wild roses. Not observed at Fort Whipple; but the range northward of this species, as now known, includes the whole of New Mexico and Arizona; and further north, at least, as far as Fort Bridger, Utah.

51. Selasphorus rufus Swains.

Very abundant at Fort Whipple, as it is elsewhere along the whole Pacific slope of the Rocky Mountains, and across their southern extensions into the Rio Grande valley. Summer resident, breeding abundantly; arrives April 10; remains until middle of September. Found in all situations, particularly meadows, open copses, ravines, etc., where flowers are most abundant.

CYPSELIDÆ.

52. Panyptila melanoleuca Baird.

Acanthylis saxatilis, Woodh. Sitgreave's Expl. Zuñi and Col. Riv. Birds, 1863, p. 64. ("Inscription Rock," N. M.)

Cypselus melanoleucus, Baird, Pr. A. N. S. Ph. vii. 1854, p. 118. (San Francisco Mts. Ariz.) Cassin, Illust. Bds. Cal. and Texas, i. 1855, p. 248.

Panyptila melanoleuca, Baird. B. N. A. 1858, p. 141. Coues, Newton's Ibis., 1865, p.

Rather sparingly distributed throughout the Territory; chiefly in the neighborhood of cliffs and precipices, which, I believe, it almost exclusively inhabits.

I think there can be no doubt that the bird described by Prof. Baird, as above, is the same as that briefly and somewhat incorrectly indicated by Dr. Woodhouse. While encamped at Inscription Rock, July 3, 1864, I saw great numbers of these Swifts; but, as unfortunate as Dr. W., I was unable to procure a single specimen, though many passed so near me that I could positively identify them. The chief point of discrepancy is the white rump mentioned by Dr. Woodhouse, which does not exist in Prof. Baird's specimens. But I am perfectly satisfied, in my own mind, that Dr. Woodhouse, from the imperfect observations he was only enabled to make, mistook the white patches on each side of the rump, which in life often reach nearly or quite across the uropygium till they coalesce on the median line. There is a corroboration of this view afforded by the *Tachycincta thalassina*. Observations of the latter in life gives the impression of a white rump; whereas this species has that part concolor with the back; but the large white cottony patches on the flanks are long and loose enough to meet each other on the rump. Moreover the localities whence the two supposed species come are so near as to render it unlikely there should exist two such closely allied Swifts.

From Inscription Rock* to the San Francisco Mountains, I continually met with great numbers of these birds; except along the valley of the Colorado Chiquito River, where there were no suitable places for their habitation. It is preëminently a saxicoline species, and always found congregated in considerable, sometimes in immense numbers, in the vicinity of huge cliffs and piles of rocks; usually associating intimately and peacefully with several species of *Hirundinidæ*, especially *Hirundo lunifrons*. Its flight is very rapid and vigorous; similar in character to that of the common *Chætura*. Its note is an often and quickly repeated twitter, loud and shrill, quite different in tone from that of *Chætura pelasgia*. It builds upon the vertical faces of precipitous rocks.

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* Inscription Rock is a huge mass of sandstone protruding from the side of a hill, with a front of great height perpendicular to the plain below; situate a days march west of Whipple's Pass of the Rocky Mountains, and rather more than that distance east of the Pueblo of Zuñi. The San Francisco Mountains are a well known locality.

Notwithstanding the identity of Baird's with Woodhouse's species, I do not think that the former's name, accompanied by a definite description, should give way to the brief and incorrect indication of *Acanthylis saxatilis*.

CAPRIMULGIDÆ.

53. Antrostomus Nuttalli (Aud.) Cassin.

This widely distributed species, which extends from Missouri and Kansas to the Pacific and south into Mexico, is particularly abundant throughout Arizona. At Fort Whipple it is a summer resident, arriving late in April and remaining until October. So numerous is it in some localities that around the camp-fires of the traveller a perfect chorus of their plaintive two-syllabled notes is continued all through the night, and some of the performers are usually so near that the sharp click of their mandibles which follows each cry is distinctly audible. But from the difficulty of observing them, little of their personal habits, beyond their cries, are known to us. I never saw a single bird in Arizona, though I have listened to perhaps many hundred. Their dissyllabic note is a peculiarity which well distinguishes them from *A. vociferus*.

I have been informed that the trissyllabic notes of *A. vociferus* have been heard in Arizona; but I consider the statement as very improbable.

(54.) Chordeiles Henryi Cass.

Abundant throughout the Territory. At Fort Whipple a summer resident, arriving in April and remaining until October. It is particularly numerous in August and September.

This species, if it be really one, is not larger than *C. popetue*, and it otherwise is so closely allied to the latter, as to render the separation of some specimens a matter based upon locality rather than upon differences to be found on comparison of skins. The western bird presents variations quite parallel with those of *popetue*; but nevertheless the average is much lighter colored and with more rufous about it, than usually exhibited by eastern specimens. These remarks are founded upon examination of very extensive series of both birds which have been at my disposal.

(55.) Chordeiles Texensis Lawr.

Common in the Colorado valley to even further north than the latitude of Fort Whipple; but not observed elsewhere further north than some fifty miles south of the last mentioned locality; and then only in summer. Extends from the Rio Grande valley to the Pacific. Numerous specimens are in the Smithsonian from Cape St. Lucas.

A female procured at Date Creek, June 5, 1865, differs from *C. Henryi* as follows: The wing from the carpus measures 7 inches instead of about 8; the tail 4¼ instead of 5. The throat, though the specimen is a female, is pure white; but there are no white bands on the tail, the lateral rectrices having very irregular, interrupted bands of rufous, except the middle pair, which are barred with black and mottled gray, the latter much the widest. The primaries are all basally spotted thickly on both inner and outer webs with bright rufous, which spots show a tendency to form incomplete bars. On the three first primaries is a large spot of very light rufous, placed within 2½ inches of the point of the wing. The fork of the tail is less than a third of an inch. In neither sex of *C. Henryi* is there any rufous mottling on the primaries; and thus one conpsicuous alar spot is white in both sexes; and is moreover much nearer the bases of the primaries, being 3½ inches from the point of the wing; so that when the wing is folded the spot is anterior to the ends of the secondaries. The reverse is the case in *C. Texensis*; and these points will always separate the two species, even when small female *C. Henryi* is compared with large male *texensis*. I do not know if the female *texensis* always has a white throat.

I am unable to discuss the relationship of the *C. brasiliensis* Gm., and in adopting the name *texensis* I am following Mr. Lawrence's authority altogether.

HALCYONIDÆ.

56. Ceryle alcyon (L.) Boie.

Common summer resident. Arrives April 10th; remains until November. Generally distributed over the various streams of the Territory.

(57.) Ceryle americana (Gm.) Boie.

Observed at several points on the Colorado River between Forts Mojave and Yuma, which I believe is the first recorded instance of its occurrence in the United States elsewhere than in the valley of the Rio Grande.

COLOPTERIDÆ.

58. Tyrannus vociferans Swains.

Abundant summer resident. Arrives third week in April; remains until latter part of Sept. Found in every sort of locality.

Adult individuals of the same sex hardly vary appreciably in size; and the colors are exceedingly constant. Males average from 9· × 16·5 to 9·25 × 16·75; females measure about 8·75 × 16. Iris brown. Bill and feet black. Mouth livid flesh color.

The young of the year in July and August differ materially from the adults. The mouth and some part of the lower mandible are bright yellow. The feet are light colored instead of black. The primaries are not attenuated near their tips. There is no trace of the red in the crown. The outer web of the exterior tail feather is barely appreciably lighter than the rest. The wing coverts are strongly margined and tipped with pale rufous: the quill feathers less conspicuously edged with yellowish white. The back is nearly pure dull brown, concolor with the head instead of being olive gray in contrast with the plumbeous head. Below the two ages are nearly alike; but the yellow is sometimes so pale as to be dull sulphury white; while the breast is rather brown than plumbeous. The chin is always conspicuously pure white.

(59.) Tyrannus verticalis Say.

A bird which in its extensive wanderings includes Arizona, though that country cannot be considered as properly a part of its habitat. Dr. Cooper has taken it at Fort Mojave, and throughout Southern California. I have never met with it at Fort Whipple, where *vociferans* is so very abundant.

60. Myiarchus mexicanus (Kaup.) Baird.

Common summer resident. Arrives third week in April; remains until middle of September. Seldom found in the pines, preferring ravines, hillsides, creek bottoms, etc. Some winter as high in the Colorado Valley as Fort Mojave. (January; *Cooper*.) Iris brown. Mouth livid flesh color. Bill and feet black. Moult through July and August.

At Fort Whipple young birds were first observed early in July. Though not mistakable for any other species, they differ notably from the adults. The head is clear brown, in tolerably strong contrast to the color of the back, which latter is lighter and duller than that of the adult. All the wing coverts are so widely edged and tipped with light rufous as to give the prevailing color to these parts. The reddish edging of the primaries is very broad, and takes in more of the primaries, but is duller than in the adult. The tail differs most; instead of being dimidiated with clear brown and deep pure chestnut, (the outer webs and tips being of the former color,) the whole tail is light dull chestnut, more or less obscured by dusky towards the bases of the feathers; the central pair having a narrow median shaft line of this color. The under parts are quite similar to those of the adults; the yellow being fully as intense. The bill and feet are black, as in the adult: the mouth, however, is bright yellow.

The males average 8·50 × 13·25. The females are generaly fully ·50 × 1·50 shorter in these dimensions; a somewhat unusual amount of difference in this family.

61. SAYORNIS SAYUS (Bp.) Baird.

Common throughout the Territory; a summer resident at Fort Whipple. Is the first of the migratory birds in spring, arriving in March; and it also remains very late, until the middle of October. Winters in the whole Colorado Valley, and southern portions of the Territory generally. Almost exclusively frequents open plains in stunted chaparral, sage brush, etc.; and in some other points of habit differs remarkably from our other Fly-catchers.

The iris is dark brown; the bill and feet black, the mouth chiefly flesh colored. The moult is not finished until late in September.

There is an interesting parallelism in the migrations of the smaller Fly-catchers of the eastern and western coasts. Thus the present species arrives at Fort Whipple among the very first of the spring migrants, just as *S. fuscus* does in the middle districts of the Eastern States. Both likewise depart very late, some remaining through October. Next in order come various species of *Empidonax*:—in the East, *E. acadicus*, *traillii*, *flaviventris* and *minimus*; in the West, *E. pusillus*, *difficilis*, *hammondii* and *obscurus*; which correspond very nearly in their times of arrival and departure. Latest of all the *Contopi* make their appearance:—*C. virens* in the East; *C. Richardsonii* in the West.

This species does not habitually frequent cañons, rocky gorges, secluded banks of streams, etc., like its congener, *S. fuscus*; nor yet does it inhabit forests with the *Contopi* and *Empidonaces*.

(62.) SAYORNIS NIGRICANS Bonap.

A very abundant and permanent resident in the valleys of the Gila and Colorado, and more southern portions of the Territory generally. "Winters as high as Fort Mojave," (*Cooper.*) Not found at Fort Whipple, though detected a very few miles southward of that locality. On the Pacific coast it has been found considerably north of the latitude of Whipple; and will in all probability be found as at least a summer visitant to the latter place.

63. CONTOPUS PERTINAX Cab.

Contopus "*borealis* ex Mex." of many authors. Not *Tyrannus borealis* Sw. et Rich.

Contopus pertinax, Cab. Mus. Hein. ii. 1859, p. 72.

Very rare summer resident at Fort Whipple. A single specimen, taken Aug. 20, in good plumage, though most other Fly-catchers were in moult. The bill above was black, the lower mandible and mouth rich orange yellow. This young specimen differs from adult examples from Mexico in having more brown rather than pure dark olive in the color of the upper parts, in having the rump and upper tail coverts margined with dull ferrugineous; all the wing coverts and the secondaries broadly edged and tipped with the same, palest on the secondaries; and a wash of rufous on the under parts generally. The tail is less deeply forked.

This is a species to which are to be referred the various citations of "*borealis*" from Mexico; which latter species does not appear to include this country in its range. The differences between the two are more palpable than is generally the case in this group of birds. There is more of olive, and less of pure dark brown in the upper parts. The under parts are of a nearly uniform soiled dull brownish olive, only a little lighter on the throat, and somewhat tinged with yellowish on the middle of the abdomen, very different from the streaked brown breast and white throat and abdomen of *borealis*. The bill is much longer though not wider than that of *borealis* ; bright yellow below. The tuft of white crissal feathers is far less conspicuous. In *pertinax* the second, third and fourth quills are about equal to each other, and longest ; the first half an inch shorter than the second ; intermediate in length between the fifth and sixth. In *borealis* the second quill is much the longest, the first and third about equal and ·15 of an inch shorter than the second ; the fourth ·50, and the fifth ·90 of an inch shorter than the longest. A very differently shaped wing is thus produced. The tail of *pertinax* is nearly half an inch longer than that of *borealis*.

The present species is one of several Mexican and Peninsular birds which are found in upper Arizona ; doubtless following the course of the Valley of the great Colorado. It is now for the first time introduced into the Fauna of the United States.

64. Contopus Richardsonii (Swains.) Baird.

Exceedingly abundant summer resident. Arrives in spring about May 1st, the latest of the Fly-catchers, as does *C. virens* in the East. Departs third week in September. Found in all situations, but especially in open forests. Iris brown. Bill and feet black ; the under mandible somewhat lighter colored. Mouth bright yellow.

The plumage of the upper parts of the young of the year is plain dull brown, with no olive tint ; some of the feathers (chiefly those of the head and rump) tipped with dull rufous ; which sometimes, especially on the rump, gives the main color to the part. Below the olivaceous gray of the adult is every where mixed with considerable dull ferrugineous ; only the chin and middle of the belly being untinged with this color. All the wing coverts and the inner primaries are strongly edged and tipped with ferrugineous. The iris is brown ; the bill above and the feet black ; the lower mandible yellow except at tip ; the mouth orange yellow.

In examining the very large series of skins I have collected on the Rio Grande in New Mexico, and in Arizona, together with specimens from Colorado Territory and other parts of the west, there has been made upon me an impression that there are two species. By far the majority of specimens are of the regulation *Richardsonii* type. A few others in the series and from very various and diverse localities, differ in being all over of a more decided and uniform grayish brown ; with less of olive above and with no trace below of any sulphury olive on the abdomen ; this part with the throat being more decidedly dull whitish than the rest of the series ; and the breast more purely gray, in contrast to the lighter colored throat and abdomen. The bird may be well described as a miniature of *C. borealis*. Prof. Baird has always, to me, *verbis et literis*, indicated his decided conviction that there are two species in the collection ; and we have been in the habit of designating these gray specimens as *Contopus Veliei*, after Dr. Velie, who sent the first example from the mountains of Colorado Territory. But the proportions of the birds appear the same in every specimen ; and I have noticed, too, that all these gray ones are late summer or early fall birds, and I must candidly confess my inability to satisfactorily discern in the series a second species.

65. Empidonax pusillus (Swains.) Baird.

Moderately abundant summer resident. None of the several *Empidonaces* found at Fort Whipple are very numerous ; and this is perhaps the most characteristic species. Arrives middle of April ; remains through September. Several excellent and typical examples of both old and young are in my collection, which I have no difficulty in identifying by Prof. Baird's superb monograph.

Iris blackish brown. Legs and feet and upper mandible black ; lower mandible dusky flesh. No. 36945, measures 5·9 × 8·7 ; No. 36944, 6·1 × 9·2.

A young bird in my Fort Yuma collection, (Sept. 17, 1865,) differs greatly from the adult in colors, though the proportions are accurately preserved. It is everywhere very strongly suffused with olive, becoming olivaceous yellow beneath, almost like *flaviventris* or *difficilis*. The middle of the abdomen, however, is more decidedly whitish, and the sides of the breast somewhat rufous. The bands on the wings and the edges of the primaries are very strongly tinged with ferruginous, especially the former. The tail is margined with a duller shade of the same color, as is also the under coverts of the wing near its edge The upper mandible is black ; the lower with the whole mouth bright yellow. The feet are brownish. But with this similarity of colors the shape of the bill, and the proportions of some other parts will always readily distinguish it from *flaviventris* or *difficilis*.

The *Platyrhynchus pusillus* of Swainson (Syn. Mex. Birds in Phil. Mag. May, 1827, 366,) is one of several *Tyranninæ* which Dr. Sclater finds it difficult to determine satisfactorily, (P. Z. S., 1859, p. 44.) The species is, I think, most undoubtedly the same as that subsequently described and figured by Swainson and Richardson, (F. B. A. ii. 1831, p. 144,) which Prof. Baird has shown quite conclusively to be the species now under consideration. I have elsewhere (vide infrà) shown where I think belongs *Tyrannula affinis* of Swainson's Mexican synopsis.

66. EMPIDONAX DIFFICILIS Baird.

E. difficilis Baird. B. N. A., 1858, p. 198; name proposed in text of *flaviventris* for western specimens.

Rather rare ; summer resident ; arrives middle of April ; remains until latter part of September.

Iris brown ; feet black ; upper mandible black, lower light yellow.

It is somewhat difficult to distinguish this supposed species from the eastern *flaviventris*.

67. EMPIDONAX HAMMONDII (Xantus) Baird.

Rather rare summer resident. Arrives late in April ; remains until third week in October.

A species readily discernible among the little North American *Empidonaces* by its diminutive bill, the deep forking of the tail, and the proportions of the primaries, independently of its peculiar shades of color. The grayish white tips of the lesser and median wing coverts are very conspicuous. The white margin of the inner primaries and secondaries are well defined ; but stop abruptly before reaching the greater coverts, so that a well marked area is thus left entirely dark colored ; except on a single feather, (the innermost secondary), which is margined for its whole length. Specimens hardly vary in size ; not more than a fourth of an inch in length, and a little more in extent The bill is almost wholly dark colored ; the under mandible being only slightly lighter in color. The legs and feet are black. The mouth at all seasons is bright yellow.

In the fall, as usual, the whole colors of young birds are tinged more or less strongly with yellowish olive ; and sometimes on certain parts with pale ferrugineous. The back especially towards the rump is quite decidedly olivaceous brown ; the head not so purely brown as in spring. The bands on the wing, and the margins of the primaries are tinged with rufous olive. The under parts, especially on the abdomen and flanks, are strongly olive yellow, giving somewhat the aspect of *flaviventris* ; but the throat and breast remains much as in spring.

68. EMPIDONAX OBSCURUS (Swains.) Baird.

Tyrannula obscura, Swains. Syn. Mex. Phil. Mag. i. 1827, p. 367.

Empidonax Wrightii, Baird, Birds N. A., 1858, p. 200. (Provisional name, in text under *E. obscurus*.)

Summer resident; rare. Arrives early in April: remains until October. Bill black above ; bright yellow below, except at its extreme tip. Mouth yellow at all seasons. Iris brown. Subject to only very slight variations in size.

One of the most strongly marked of our *Empidonaces.* Its essential characters lie in the much elongated and very narrow bill; the long tarsi; the tail not forked, but rather the reverse ; and the conspicuously contrasted white outer web of the exterior rectrices. Its colors are almost precisely those of *Hammondii*, but the proportions of the two birds are quite different.

There are several discrepancies between the present bird and the brief and unsatisfactory description of Swainson above cited, as shown by Prof. Baird, who proposes the name "*Wrightii*" in the event that the Mexican bird proves distinct from that of the United States.

[Note.—Dr. J. G. Cooper furnishes me with the following: "*Empidonax Traillii.* I have found this species west of the Mojave River and Cajon Pass, and at Santa Barbara, in California. It was abundant at Fort Mojave: a shy and retiring species; keeping in the willow and cotton wood copses of the river bottom." Though disliking to suppose an error of identification in so judicious a naturalist, I am of opinion that the note refers to *pusillus*, and not to *Traillii.* Still *Traillii* is found in Mexico, and may very possibly ascend the valley of the Colorado.]

MITREPHORUS Scl.

Mitrephorus, Sclater, P. Z. S., 1859, p. 44 ; type *M. phæocercus* Scl.

A genus founded by Dr. Sclater, as above, to receive certain small Tyrannuline forms, closely allied to *Empidonax*, but differing from that genus in the elongation of the occipital feathers, and a general fulvous or buffy suffusion which tinges all the colors of the species.

To the genus thus based upon *M. phæocercus* from Central Mexico, also belongs the *Muscicapa fulvifrons* of Giraud. A third species is one recently described by Mr. Lawrence,* from Costa Rica, as *M. aurantiiventris*, differing from *phæocercus* in being rather smaller, the rusty fulvous of the under parts much lighter, becoming bright orange yellow on the abdomen and sides, etc.

I have the pleasure of introducing this neotropical genus into the United States Ornis, upon specimens taken at Fort Whipple, of a species I shall describe as new ; but which is so closely allied to *M. fulvifrons* that the two may hereafter prove to be identical.

69. Mitrephorus pallescens Coues, nov. sp.

??*Tyrannula affinis*, Swainson,† Syn. Mex. Birds, Phil. Mag. i. 1827, p. 366.

?*Muscicapa fulvifrons*, Giraud, B. Texas, pl. 2, fig. 2, = *Empidonax fulvifrons*, Scl. P. Z. S., 1858, p. 301, = *Mitrephorus fulvifrons*, Scl. P. Z. S., 1859, p. 45, = *Empidonax rubicundus*, Cab. Mus. Hein, ii. p. 70.

Empidonax pygmæus Coues, Newton's Ibis, 1865. (MS. name mentioned in text.)

Sp. Ch.—Above plain dull grayish brown, tinged with olive, particularly on the middle of the back; the head and rump hardly appreciably thus tinged. Below very pale fulvous, most pronounced across the breast, the chin and throat being much lighter, and the abdomen almost white. No fulvous suffusion about the forehead ; the dark feathers of the crown reaching to the bill ; the space between eye and bill, the auriculars and sides of the head generally light brownish olive, with no trace of fulvous. Wings and tail plain dusky ; the outer web of the external rectrices, the margins of the inner primaries, except just at their base, and the tips of greater and median coverts, dull white, with no tint of olive or ferrugineous. Iris brown ; upper mandible and feet black, lower mandible and mouth bright yellow. Length 4·75 ; extent 7·30 ; wing from the carpus 2·15 ; tail 2·00 ; tarsus ·55 ; middle toe and claw ·45 ; bill above ·40.

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* Annals Lyc. Nat. Sci. Hist. New York, viii. Nov., 1865, p. 174.

† *T. affinis* Sw. l. c. "Olive, beneath pale fulvous; wing coverts and quills with pale margins; base of lesser quills with a blackish spot; bill small; under mandible yellow; tail divaricate."

Habitat.—Fort Whipple, Arizona. A summer resident, arriving early in May. Rare. Found in similar situations with *Empidonaces.*

I have before me but a single specimen of *Mitrephorus fulvifrons*, which, judging from the rufous in the white of the wing margins, and general "feel" of the feathers is probably an autumnal or immature bird. It was received from Mexico through the Maison Verreaux, and labelled by those gentlemen. From this specimen, my two examples, taken in May, at Fort Whipple, differ conspicuously in color ; the upper parts being dull grayish brown, with hardly a tinge of olivaceous, instead of decided fulvous brownish olive ; the lower parts being pale fulvous, only well marked on the breast, other portions, particularly the abdomen, being nearly white ; whereas, in the specimen of *fulvifrons*, the whole under parts are very strongly fulvous, almost ferrugineous, only a little lighter on the chin and on the abdomen, which latter is rusty yellow instead of nearly white. The forehead and lores of my specimens exhibit no trace of the color which has given the other species its distinctive name.

I can, however, detect no differences whatever in size or form between the two. I consider it as quite possible that the discrepancies above indicated may prove to be only those of age or season. Still, a decided difference in color does exist, sufficient to warrant me in describing the species as distinct, for the present, at least. The range of habitat of the two is quite diverse.

No comparisons with *M. phæocercus* or *aurantiiventris* are needed.

Dr. Sclater, in instituting his species *phæocercus*, inclines to the opinion that it may be the species indicated by Swainson as *Tyrannula affinis.* (See citation and copy of Swainson's description, anteà.) It is quite likely that Swainson had in view some species of *Mitrephorus ;* but I think rather the present species than *phæocercus*, as the expression "beneath pale fulvous" hardly applies to the latter, in which the parts are very strongly colored indeed. However, Swainson's description is so vague and meagre, that it is hardly worth considering at all, in view of the impossibility of identifying it positively with any species.

I use another name than that under which I first mentioned the species in Newton's Ibis, as above ; since the species being not smaller than *fulvifrons*, the name *pygmæus* would convey an erroneous impression regarding it.

(70.) PYROCEPHALUS MEXICANUS Sclater.

Pyrocephalus rubineus, Baird, B. N A., 1858, p. 201, (New Mexico and Arizona,) and of North American writers. Not *Muscicapa rubineus* Bodd., nor *Muscicapa coronata* Gm. Wagler, which refer to the South American species.

Pyrocephalus nanus, Woodhouse, Sitgreave's Report, 1853, p. 75. Not the true *nanus.*

Pyrocephalus mexicanus, Sclater, P. Z. S., 1859, p. 45.

Not found as far north as Whipple, among the mountains, though it extends up the valley of the Colorado to an equally high latitude. Common in the valley of the Gila and Southern Arizona generally.

Without the material for forming an opinion of my own, I follow Dr. Sclater in separating the Mexican bird from that of South America.

TURDIDÆ.

71. TURDUS (PLANESTICUS) MIGRATORIUS Linn.

Abundant; resident; a few winter, and fewer still breed ; exceedingly numerous in spring and fall.

72. TURDUS (HYLOCICHLA *) NANUS Audub.

Rare; spring and autumn migrant; some breed? A few probably winter; as it certainly does at Fort Mojave, where Dr. Cooper has found it in January. A shy and retiring species, like *T. pallasii.*

73. TURDUS (HESPEROCICHLA †) NÆVIUS Gmelin.

Was obtained on the Colorado, between Forts Yuma and Mojave, by Lieut. Ives' Expedition in 1853; but this locality must be considered as exceptional.

74. MIMUS POLYGLOTTUS (L.) Boie.

Common summer resident. Arrives third week in April; remains until latter part of September. I found it more numerous on the Colorado Chiquito than among the Whipple Mountains. My specimens from the Rio Grande are quite like those from Arizona, of the variety *caudatus* Baird.

No. 1480, Adult. Iris yellowish green. Bill and feet blackish. No. 392, adult. Iris ochraceous yellow. No. 560, young. Iris gray, mouth yellow, feet leaden blue, soles dirty white; bill above blackish, below chiefly dull flesh color.

75. OROSCOPTES MONTANUS (Towns.) Baird.

It is a little singular that I never saw this species about Fort Whipple, since it is so well known a bird of almost every portion of Arizona.

(76.) HARPORHYNCHUS LECONTEI (Lawr.) Bp.

On the 30th of September, 1865, I had the pleasure of procuring the second known specimen of this excessively rare and little known species. I found it on a dry, barren plain, covered chiefly with *mezquite* and several genera of *Cactaceæ*, about fifteen miles from the Colorado River, just above Fort Mojave. It was very shy and restless, fluttering hurriedly from one cactus bush to another, till at last I shot it as it fancied itself hidden among the thick fronds of a large *Yucca*. Its large strong feet admirably adapt it for a partially terrestrial life, and it spends much of its time on the ground, where it runs rapidly and easily. Its flight is swift but desultory, accompanied by continual flirting of the tail. A few days afterward I saw several more in the same place.

My specimen agrees exactly with Mr. Lawrence's type and description, and presents all those differences from *crissalis* detailed by Prof. Baird in his Birds of North America. Mr. Lawrence's type is from Fort Yuma. The species is undoubtedly an inhabitant of the whole of the valleys of the Colorado and Gila, probably not leaving these streams for mountainous regions.

(77.) HARPORHYNCHUS CRISSALIS Henry.

Colorado and Gila valleys. Not observed at Whipple. "A few keep about Fort Mojave." (*Cooper.*)

The second known specimen of *H. crissalis* is in the Smithsonian, from Fort Yuma, the original locality of *H. Lecontei*. The range of both species is doubtless quite identical; and the fact that, though thus associating, they still preserve intact their distinctive features, is a strong argument in favor of their separation. I have myself examined Dr. Henry's type specimen of *H. crissalis*, and find it sufficiently distinct from *Lecontei*, whatever may be its relations to the coast species *redivivus*.

The "? *Harporhynchus curvirostris*" mentioned by Dr. Heermann in his Report, as having been seen near Tucson, Southern Arizona, was undoubtedly either this or the preceding species.

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* *Hylocichla*, Baird, Rev. N. A. Birds, 1864, p. 12. Subgenus proposed for N. Amer. Wood Thrushes, as differing from *Turdus* proper with *viscivorus* as type, by their shorter, wider and more depressed bills, length and slenderness of the booted tarsi, etc.

† *Hesperocichla*, Baird, Rev. N. A. Birds, 1865, p. 12. Type *T. nævius* Gm.—*Ixoreus* of Bonaparte proves to belong to a different group.

CINCLIDÆ.

(78.) Cinclus mexicanus Swainson.
The known range of this species includes Arizona.

SAXICOLIDÆ.

79. Sialia mexicana Swainson.
Permanent resident. Exceedingly abundant. In its familiarity and other habits exactly replaces *S. sialis* of the east.

Specimens vary in every conceivable degree between the dullest colored young female and the high plumaged spring male. In immature plumage some examples much resemble *S. artica*; but there is always discernible a dorsal patch somewhat differently colored from the rest of the upper parts. The shade of blue differs in equally mature males, being sometimes of a purplish tint, and rarely the blue so invades and interrupts the dorsal chestnut as to render the boundaries of the latter quite undefinable.

80. Sialia arctica Swainson.
Rather uncommon. Noticed only late in the autumn and in the winter; not observed to breed at Fort Whipple, and I think it is there chiefly a winter visitant. Has been taken as far South as Fort Yuma. Audubon's figure of the female is quite incorrect. The species differs conspicuously from *mexicana* in its habits.

SYLVIIDÆ.

81. Regulus calendulus Licht.
Exceedingly abundant; migrant. In spring, from third week in March to second week in May. In autumn, from latter part of September to November. A few probably breed in the neighboring mountains. The species remains in abundance in the Colorado Valley during the winter, at least as high as Mojave.

82. Regulus satrapus Licht.
Has been taken in the Territory, though I have myself never met with it.

83. Polioptila cærulea (Linn.) Scl.
Culicivora mexicana Bonap. *Polioptila mexicana* Sclater. But not of Cassin, which is *melanura*.

Rare; summer resident; first individuals noticed April 25. "Winters in the Colorado Valley." *Cooper.*

84. Polioptila plumbea Baird.
P. plumbea, Baird, Pr. A. N. S. Ph. 1854, p. 118. Id. Birds N. A. 1858, p. 382, pl. 33, fig. i. Id. Rev. Amer. Birds, 1865, p. 74, (Arizona.)

Essentially a bird of the Southern Middle fauna, and generally distributed throughout Arizona, though no where very abundantly. Bill William's River, *Kennerly*, (original types of species;) Fort Yuma, *Ives*; Colorado Chiquito, Fort Mojave, Beale's Springs, Hassayampa Creek, near Fort Whipple, *Coues*. At the last mentioned locality it is a summer resident. "Winters in the Colorado Valley." *Cooper.*

(85.) Polioptila melanura Lawr.
Culicivora atricapilla, Lawrence, olim. Not of Swainson, which is *leucogastra*, Maxim.
Culicivora mexicana, Cassin, not of Bonaparte or Sclater, which is true *cœrulea*.
Polioptila melanura, Lawrence, nuper. Baird, B. N. A., 1858, p. 382. Id. Rev. 1865, p. 68. Heermann, P. R. R. Survey, x, pt. iv. p. 39, (Arizona.)

Chiefly a species of the Southern Middle Province; but extending westward to the Pacific, in the latitude of San Diego, California. Fort Yuma, *Ives*; Pima Villages, Southern Arizona, *Heermann*. Probably not to be found as high up as Fort Whipple, being restricted to the Gila and Lower Colorado Valleys.

MOTACILLIDÆ.

86. Anthus ludovicianus Licht.

Abundant. Winter resident. Arrives late in the autumn, according to weather, and remains until May. None breed in the vicinity of Fort Whipple.

DACNIDÆ.

(87.) *Certhiola flaveola* (L.) Sund.

This species, first introduced into the United States Fauna by specimens from Indian Key, Florida, has since been found abundantly at Matamoras and Brownsville, Texas, and also at Cape St. Lucas. It ranges over the intermediate ground along the Southern border of the Territory.

SYLVLICOIDÆ.

88. Dendrœca Graciæ Coues.

Dendroica Graciæ, Coues MSS., in Baird's Rev. Amer. Birds, Apr., 1865, p. 210.

Description. (Orig. No. 1293, ♂, Apr. 26, 1865, Fort Whipple.) Bill shorter than head or tarsus, about equal to the middle toe without its claw; the culmen convex, the gonys very slightly so, the commissure a little curved. Wings of ordinary length for this genus; second and third primaries about equal and longest; first and fourth about equal to each other, and but little less than the second or third. Sometimes the first four hardly differ appreciably in length. Fifth ·20 of an inch shorter than fourth. Tail of ordinary length; a little rounded, the outer lateral rectrices being a tenth of an inch less than the median pair. Tarsus a little longer than the middle toe and claw. Lateral toes short, equalling each other in length; the tips of their claws falling short of the base of the middle claw. Hind claw much longer and more curved than the others; about as long as its digit.

Adult spring plumage.—Entire upper parts ashy gray, with a tinge of bluish slate; the interscapular feathers conspicuously. and the upper tail coverts obsoletely streaked with black. A broad stripe of bright yellow passes from the nostril over the eye, changing abruptly into pure white as it passes over the posterior canthus. Edges of upper and lower eyelids yellow; that of the latter more or less confluent with a small semilunar patch of yellow just below the eye. Chin, throat and upper part of the breast broadly and uninterruptedly bright yellow, bordered on each side by streaks of black, which separate it from the slaty gray of the sides of the neck; more anteriorly a black line cutting off the infra-ocular yellow crescent from the yellow of the throat. Lores between eye and bill black, and the feathers of the crown centrally black, most so on the forehead, less so on the occiput, producing an appearence much like that of *Myiodioctes canadensis.* Lesser and median wing coverts colored like the back, greater coverts like the primaries; both median and greater conspicuously tipped with white, the former much the most broadly. Primaries dusky; the first three or four with an exceedingly narrow margin of white; the rest and the secondaries with somewhat pale edges. Tail like the wings; the outermost lateral rectrices white, except their shafts, and a very small area at the base of the inner web, and the outer web for half its length from the base; next feather similar, but the dusky area twice as large; the third has only a small, somewhat triangular spot of white near the end of the inner web. The under parts, from the termination of the trenchantly defined yellow of the breast, are white; immaculate on the centre of the abdomen; thickly streaked along the sides with large, partially blended, black lines. The iris, bill and feet are black; the soles of the latter dirty yellow.

Young of the year. The slate gray of the upper parts is strongly tinged with olivaceous, least marked on the rump. The black streaks of the crown and interscapular region are so obsolete as to be scarcely discernible. The yellow of the head and throat has about the same extent as in the adult, but the tint is much paler, and it is not edged along the sides of the breast and neck by black streaks. The black lores are poorly defined. The white tips of the greater and median wing coverts are grayish rather than pure white. The strongly defined, black, lateral streaks of the adult are replaced by more or less obsolete and semiconfluent, brownish black ones, and the abdomen, crissum and circumanal region are rather ochraceous than pure white. The bill and feet are lighter colored. The white on the tail feathers does not differ materially from that of the adults. Between the extremes of color, as thus characterized, are to be found every gradation in amount of slatiness and olivaceous, of distinctness of the black lateral streaks, and intensity of yellow.

Variations. In a series of over twenty specimens of all ages and seasons, I find examples varying from 4·9 to 5·20 in length, and to a corresponding degree in extent of wings. The average dimension is 5·00 × 8·00 × 2·60. Individuals of the same age and season hardly vary appreciably in color; sometimes the black streaks of the crown show a tendency to become segregated on each side as a margin to the superciliary streak, leaving the centre of the crown immaculate, or the black may occupy the whole crown almost to the exclusion of the greyish slate. The yellow and white are always trenchantly separated on the breast, and a black border always divides the yellow chin from the yellow on the side of the head. The interscapular region may vary in its amount of streaking. The greater coverts are sometimes edged, as well as tipped with dull white.

Remarks. D. Graciæ is exceedingly unlike any other North American warbler. Its upper parts bear a striking resemblance to those of *Myiodioctes canadensis.* It agrees with *dominica* (= *superciliosa*) in the yellow throat, but is otherwise quite different from that species. It is closely allied to Baird's new Porto Rican species, *D. Adelaidæ*, but this latter has the yellow extended over the whole under parts, and otherwise differs materially in some points of form as well as color.

Habitat. First met with July 2, 1864, in the pine woods covering the summit of Whipple's Pass of the Rocky Mountains. I saw no more on my journey into Central Arizona, till again among pines at Fort Whipple, where it is a very common bird, being in fact as abundant as *virens* or *striata* in our eastern forests. It will doubtless be found in the forests of the San Francisco Mountains. Its range seems to include all the pine tracts of New Mexico and Arizona, from near the Valley of the Rio Grande to that of the Great Colorado. It breeds about Whipple; how far south it may go in winter into Mexico I am unable to say.

Arrives at Fort Whipple Apr. 20, and remains until third week in September. Almost exclusively pinicoline. An active, industrious, noisy species, possessing marked muscicapine habits, flying out from its perch to capture passing insects. Like many other diminutive birds, it ambitiously prefers to inhabit the tallest trees. It has several notes, one of which is the ordinary "tsip," emitted at all times by both old and young of most small insectivorous birds. Its song proper, only heard in spring, consists of two or three loud, sweet whistles, somewhat slurred, followed by several continuous notes resembling "chir-r-r" in a wiry but clear tone. This note is of much power for the size of the bird. Another song, uttered when pairing, is much like that of *Setophaga ruticilla.* The birds mate as early as May 1st, and doubtless raise two broods, as I have found newly fledged young as late as the middle of August.

[NOTE.—Just as these sheets are passing through the press, I find several examples of this species in a collection made by Mr. C. Wood, at Belize, Honduras, where it is said to be quite common. They are rather smaller than my Arizona specimens, but otherwise quite identical. It is somewhat remarkable that the species has never been detected in the regions lying between these two countries.]

89. DENDRŒCA NIGRESCENS (Towns.) Baird.

Common; chiefly spring and autumn migrant; but a few breed. Arrives about Apr. 20, remains until late in September. Chiefly pinicoline, and in other habits as well as in voice is exceedingly similar to *D. Graciæ.*

This species is by no means so peculiarly a Pacific one as has generally been supposed.

90. DENDRŒCA OCCIDENTALIS (Towns.) Baird.

Very rare. Summer resident. A single specimen of this little known species, taken early in September in thick scrub oak bushes. It measured 4·9 × 7·7. In this immature state the dusky olivaceous extends over the whole upper parts, deeply tinging the pure ash of the rump of the adults with a somewhat lighter shade of the olivaceous of the back, and extending forward on the crown nearly to the front, where it gradually lightens by becoming more and more mixed with yellow. The sides of the head are clear yellow, only slightly soiled by olivaceous, and the chin and throat are the same, fading insensibly on the breast into the dull greyish white of the under parts generally. The sides show indications of streaks, very obsolete, however, and have a slight wash of grayish olivaceous. There is no black whatever about the head or throat, and the back is only very obsoletely streaked with that color. The greater and median coverts are conspicuously tipped with white.

A suite of specimens illustrating all the changes of plumage of this species, so closely allied to *virens*, *chrysopareia*, etc., is still a great desideratum.

91. DENDRŒCA AUDUBONII (Towns.) Baird.

Exceedingly abundant; spring and autumn migrant. A few possibly breed. Some remain all winter. "Numerous at Fort Mojave in winter," (*Cooper.*) Very numerous from Apr. 20th to May 10th, and during the month of October, in which seasons the cotton-woods and willows of the creek bottoms are filled with the birds, which are also found in every other situation more or less abundantly.

Specimens in very high spring plumage have the black of the breast quite pure, and unmixed with slate in any portion of its extent, contrasting sharply with the whole width of the posterior edge of the yellow throat. The streaks on the sides and flanks are very narrow and distinctly defined. The interscapulare is very thickly streaked with black. The greater wing coverts are so broadly edged with white as to leave only a small space on their inner webs dusky. The yellow crown is intense in color, small and sharply defined, and there is much black on the front and lores. For so small a bird, the species varies much in size. Seasonal and sexual changes of plumage are quite homologous with those of *D. coronata.*

92. DENDRŒCA ÆSTIVA (Gm.) Baird.

Abundant. Summer resident, from April 25th to second week in September. Most numerous in the willow and cotton-wood copses.

93. GEOTHLYPIS TRICHAS (L.) Cob.

Trichas delafieldii! Heerman, P. R. R. Surv. x. 1859, p. 40.

Rare; summer resident. Arrives early in April; remains until October. Less common than the succeeding species.

Dr. Heerman is mistaken in supposing he saw *Trichas delafieldii* Audubon, in Arizona. This is a synomym of *Geothlypis æquinoctialis*, from South America.

94. GEOTHLYPIS MACGILLIVRAYI (Aud.) Baird.

Not abundant. Summer resident. Arrives late in April: remains till late in September. Exceedingly shy and retiring, keeping in the closest thickets, and very difficult to procure.

Specimens at all seasons and ages have the white eyelids distinguishing the species from *philadelphia.* Autumnal examples, though possessing the grayish ash throat just as in spring individuals, have the nape and crown so much washed with olivaceous as to be nearly concolor with the back. Iris brownish black. Bill black above and at tip of lower mandible, the rest of lower mandible and feet delicate flesh color. Average dimensions 5½ × 7¾.

95. HELMINTHOPHAGA CELATA (Say.) Baird.

Not detected at Fort Whipple, though doubtless to be found there in spring and fall, or possibly breeding. Fort Yuma, Sept. 17. Fort Mojave Oct. 1st. Headwaters Bill William's River, Oct. 3. Throughout the whole of the middle and western provinces of North America.

The *H. ruficapilla* though properly belonging to the eastern Province, has been recorded from Fort Tejon, California, (Baird B. N. A. 1858, appendix, p. 923,) and may very probably be hereafter detected in Arizona.

96. HELMINTHOPHAGA VIRGINIÆ Baird.

H. Virginiæ, Baird, Explanation of Plates of B. N. A. 1860, ix. pl. 79, fig. 1. Idem, Rev. Amer. Birds, 1865, p. 177.

Very rare: summer resident. A single immature individual procured August 15, 1864, making the second known specimen of this excessively rare species. The type is from Fort Burgwyn, N. M., *Dr. W. W. Anderson.*

97. HELMINTHOPHAGA LUCIÆ Cooper.

H. Luciæ, Cooper, Pr. Cal. Acad. Nat. Sc. July, 1861, p. 120, (Fort Mojave.) Baird, Rev. Amer. Birds, 1865, p. 178. Coues, Newton's Ibis, 1866. (Fort Whipple.)

This interesting little species, recently described, as above, does not seem to be very rare in northern and western Arizona; though so far as I am aware, five specimens taken by Dr. Cooper, at Fort Mojave, and three by myself at Fort Whipple, are the only ones known to exist in any collections. At Fort Whipple it is a summer resident; arriving the second or third week in April, and remaining till latter part of September. It mates from the 20th to the 30th of April: the young appear early in May. In habits I think it inclines toward the *Geothlypi* rather than to the species of the genus to which it belongs; showing a decided preference for thickets and copses rather than for high open woods; and also like the *Geothlypi*, it is an exceedingly shy and retiring species. The difficulty of observing and procuring it thus caused is doubtless the reason why it has remained so long undetected. It is in all its motions exceedingly active and restless; as much so indeed as a *Polioptila*, to which its colors bear such an intimate resemblance. The only note I have heard is a quickly and often repeated "tsip," as slender and wiry as that of a gnatcatcher. But Dr. Cooper tells me he has heard a rich and pleasing song, in the spring, the little performer being mounted on the top of some mezquite or other bush. I have never met with the nest; but I think it will be found, not on the ground, but in the crotch of a thick bush. Dr. Cooper thinks the bird does not breed in the Colorado Valley; but retires to mountainous regions, which is most probable. I have found it breeding at Whipple. Specimens measure from 4·30 to 4·60 in length, and from 7 to 7¼ in extent. The iris is black: the mouth flesh color, the legs and feet dull leaden blue. The young bird, just fledged, wants the chestnut crown of the adult, and the throat and breast are pure milk white, being without the faint ochraceous tinge that is just barely appreciable in the adult; the wing coverts are pale gray, and edged with ochraceous or pale rufous. The chestnut rump is present.

98. Myiodioctes pusillus (Wils.) Bon.

Common. Summer resident. Arrives early in May, and remains through part of September.

99. Seiurus novæboracensis (Gm.) Nutt.

The known range of this bird includes the Territory of Arizona. I have not myself detected the species.

100. Icteria longicauda Lawr.

Common; summer resident. Arrives April 25, leaves latter part of September. Iris black. Bill horn blue; most of lower mandible whitish. Feet leaden blue; the soles dirty white.

"I procured specimens at Fort Mojave, with tails no longer than those of eastern birds; but they were much grayer above than *viridis*, and this latter feature may be the most important distinction between the two." (*Cooper.*)

TANAGRIDÆ.

101. Pyranga æstiva (L.) Vieill.

"Fort Mojave, Apr. 26," *Cooper*. I think I have seen this species at Whipple; but the individuals may have been of the succeeding species.

102. Pyranga hepatica Swains.

P. hepatica, Swains. Phil. Mag. i. 1827, p. 438. Baird, B. N. A., 1858, p. 302.
P. azaræ, Woodhouse, Sitgreave's Expl. Zuñi and Col. Rivers, 1853, Birds, p. 82. Not of D'Orbig.
"*P. dentata*, Licht. Mus. Berol." (Sclater.).

Summer resident; not abundant. Arrives April 25. Found in very various situations.

Several specimens collected by myself on the Rio Grande, just below Albuquerque, are quite identical.

Dr. Woodhouse's type of *P. azaræ*, now in the Smithsonian, was from the San Francisco mountains, a little north of Whipple.

103. Pyranga ludoviciana (Wils.) Bonap.

Summer resident; rare. Arrives middle of April; leaves late in September. Iris brown, mouth yellow, legs and feet light blue. This species has an extensive breeding range, from at least as far north as Laramie Peak.

In high spring plumage, the head and throat become intense scarlet, deepest on the crown. The middle of the back is uninterruptedly pure black, and the rump is bright chrome, rather than gamboge yellow. The median and greater coverts, however, and the outer edges of some of the inner secondaries seem always tipped with dull yellow. The extent of red on the breast varies much. In the female, the head is merely a little more yellowish olive than the color of the back; the greater coverts and inner secondaries are tipped with white instead of yellow.

AMPELIDÆ.

104. Ampelis garrulus (L.)

A winter visitant from the north, to the more northern portions of the Territory. "Fort Mojave, Jan. 10, 1861." (*Cooper.*) I have never detected it at Fort Whipple, though it is undoubtedly to be found there in winter.

PTILIOGONIDÆ.

105. Phænopepla nitens (Sw.) Sclat.

Summer resident; rather uncommon in the immediate vicinity of Fort Whipple. A little further south, however, it is found very abundantly, and is doubtless a permanent resident in the southern portions of the Territory. Inhabits rather open country, in preference to densely wooded regions. It is a shy, wild and restless bird. The fact that it has a superb song, powerful and finely modulated, may give a hint as to its proper place in the series. It seems to me to have little affinity with the forms with which it is usually grouped.

106. Myiadestes Townsendii (Aud.) Cab.

Rare summer resident. This species has, like the *Phænopepla nitens*, eminent vocal powers, producing a rich, sweet, finely-modulated song.

It is an interesting fact, taken in connection with its highly-developed lower larynx, that the young *Myiadestes* is spotted all over exactly like a young thrush. Numerous individuals which I studied several years ago differed from the adult precisely as a young *Turdus migratorius* does. Another marked Turdine character is seen in the "booted" tarsi—very different from the scutellations which obtain in *Phænopepla*, with which *Myiadestes* is usually intimately associated in classifications. Whether *Phænopepla* is to be grouped with the *Ampelidæ* or not, I think there is little doubt that *Myiadestes* is typical of an aberrant subfamily *Myiadestinæ*, of *Turdidæ*.

HIRUNDINIDÆ.

107. Progne subis (Linn.) Baird.

Hirundo subis, Linn. S. N., 1758, p. 192, (10th ed.)
Progne subis, Baird, Rev. Amer. Bds., 1865, p. 274.
Hirundo purpurea, Linn., 12th ed. *Progne purp.* auct. Baird, B. N. A., 1858, p. 314.

Exceedingly abundant; summer resident. Arrives first week in April; remains till third week in September. Exclusively pinicoline; eminently gregarious; breeds in Woodpecker's holes in company with *Tachycineta thalassina*.

108. Petrochelidon lunifrons (Say.)

Abundant throughout the Territory, wherever suitable localities for its nests are to be found. Associates freely with *Panyptila melanoleuca*, near the San Francisco mountains. Especially abundant at several points along the Colorado, where the river makes it way through precipitous cañons. Arrives at Whipple early in April; remains until September.

(109.) Hirundo horreorum Barton.

"Numbers seen migrating through Fort Mojave, May 25, 1861." (*Cooper.*) I found it one day in great numbers along the Rio Grande, near Albuquerque, but never detected it at Fort Whipple.

110. Tachycineta thalassina (Sw.) Cab.

Very abundant, being the common and characteristic swallow of the pine regions of Arizona, as *Petrochelidon lunifrons* is of the cañons, precipices, etc. Summer resident at Fort Whipple, arriving about March 20, and remaining until late in September. See remarks, anteà, upon *Progne* and *Panyptila*. Iris brown, bill black, mouth yellow, feet brownish black.

111. Cotyle riparia (L.) Boie.

Rare summer resident. A few observed at Fort Whipple late in April.

112. Stelgidopteryx ?serripennis (Aud.) Baird.

Summer resident, breeding abundantly. Arrives late in April, and remains through the greater part of September.

Some young birds, taken early in September, differ from eastern examples in having the wing half an inch shorter; the tail a fourth of an inch less. The bills of both are quite identical, while the feet are even larger and stouter. The upper parts are of a brighter, clear brown, instead of grayish brown. The wing and tail coverts, and the outer margins of the secondaries and inner primaries are edged and tipped with dull ferrugineous. The whole under parts as far as the abdomen have a rufescent hue. There is, as yet, no trace of the recurving and serration of the outer web of the first primary.

It is quite possible that these specimens should be referred to Dr. Sclater's *Cotyle fulvipennis*, from Mexico.

LANIIDÆ.

113. Collyrio borealis (Vieill.) Baird.

Rare winter resident. A single specimen, taken in February. Iris brown; mouth yellowish white; bill black, except at base of lower mandible; feet black.

This is about the southernmost locality whence the species has thus far been recorded.

114. Collyrio excubitoroides (Sw.) Baird.

Rare. Single and only specimen taken September 4th, 1864. The species is probably resident in this locality, though far from abundant.

VIREONIDÆ.

115. Vireo Swainsoni Baird.

V. Swainsoni, Baird, B. N. A., 1858, p. 336; in text under *V. gilvus*: name suggested, if western species be distinct. Coues, Newton's Ibis, April, 1865, p. 164.

V. gilvus, Cooper and Suckley, Nat. Hist. of Washington Territory, 1860, p. 188.

Sp. Ch.—Size and general aspect of *V. gilvus*. Upper parts olive ash, decidedly less olivaceous than in *gilvus;* so that the back is nearly concolor with the head. Below whitish scarcely appreciably washed with yellowish, and only along the sides; the median portions of the under parts pure white. Other markings less distinctly defined than in *gilvus*. Wing more rounded; fourth primary longest; third and fifth equal to each other and nearly as long; second much shorter than the sixth; hardly exceeding the seventh. First (spurious) primary decidedly longer than in *gilvus* (·10 to ·15 of an inch.)

Habitat.—Rocky Mountains to the Pacific. Common summer resident at Fort Whipple, arriving in April and remaining until October.

Comparisons.—All the very numerous specimens of *Vireo* "gilvus" from the Pacific slope of the Rocky Mountains constantly differ from the eastern type by the quite appreciable characters expressed in the preceding diagnosis. These differences, though slight indeed, are quite tangible, and, in a group so little liable to variation as the Vireones, are very probably indicative of specific distinction.

The most notable distinction is found in the proportionate lengths of the primaries. All eastern *gilvus* that I have seen have the third quill longest, or the third, fourth and fifth about equal and longest, the second being equal to or longer than the sixth. In the present bird the fourth quill is decidedly longest; the third and fifth successively a little shorter, while the second is about equal to or but little longer than the seventh, never equalling the sixth. The spurious primary is from one to nearly two-tenths of an inch longer than in *gilvus*. In addition there is a decidedly ashy rather than olivaceous wash on the upper parts, rendering the crown and back nearly concolor; and there is less sulphury yellow on the under parts.

Whether these differences be "specific" or not it is certainly well to define them, and give to the species or race a name by which it may be recognized. Prof. Baird first called attention to these discrepancies, suggesting the name I have adopted in thus characterizing the new species.

In the discrepancies in the proportionate lengths of the quills of this species and *V. gilvus*, there is discernible a striking analogy with the distinctive characters of *Carpodacus californicus* as compared with *C. purpureus*.

In both *C. californicus* and *V. gilvus* the longest primary is advanced by one over their eastern representatives, the third and fourth being respectively longest, instead of the second and third; and in both, the first quill is abbreviated.

116. VIREO PLUMBEUS Coues, nov. sp.

Sp. Ch.—First quill spurious; second equal to or little longer than sixth; third longest; fourth and fifth successively but little shorter. Entire upper parts, including crown, sides of neck and line from below under eyelid to bill, uniform pure plumbeous or ashy gray, with no shade of olivaceous whatever, except a faint wash of this color on the extreme uropygium. Superciliary streak passing from nostrils over and around eye, including under eyelid; two conspicuous bands on wings; outer margins of all secondaries and most primaries; both margins of all rectrices except median pair; and entire under parts, pure white. Sides under the wings and inferior wing coverts faintly washed with light sulphury olivaceous. Lores blackish ash. Bill and feet bluish black; former very robust. Length 5·75 to 6·10 inches and hundredths; extent 9·75 to 10·25; wing from carpus 2·90 to 3·10; tail 2·50; bill ·45; tarsus ·65; middle toe and claw ·65; exposed portion of spurious primary ·75; a third the length of the second primary.

Habitat.—High central plains to the Pacific. Laramie Peak. Especially abundant in Northern Arizona. By far the commonest *Vireo* at Fort Whipple; a summer resident; arrives April 25; remains through September.

Description.—(No. 40,703, ♂, May 17, 1865, Fort Whipple. *Type*). The bill is large and very robust, being especially deep at the base, where it is compressed and much higher than broad. The ridge of the culmen is well defined; its outline very convex, the tip of the bill being much decurved, strongly hooked and notched. The commissure is a little curved; the gonys slightly convex and ascending. The tarsus is about as long as the middle toe and claw. The tip of the outer claw a little surpasses the base of the middle one; which point the tip of the inner claw falls a little short of. The hallux is considerably longer than its claw; and, with its claw, is about as long as the middle toe without its claw. The wings are long, reaching, when folded, a little beyond the middle of the tail. The third primary is usually longest; but the fourth and fifth are so near it that often there is no perceptible difference. The second is about as long as the sixth, or intermediate between it and the fifth. The spurious primary is a third as long as the second. The tail is moderately long; the rectrices obliquely truncated and a little pointed at their tips.

The bill is deep bluish black, the posterior half of of the lower mandible often light bluish horn, in marked contrast; the feet and claws are dusky leaden blue. The mouth is livid bluish white; the eyes reddish brown. The back is plainly plumbeous, like the head; and only for a brief space on the rump is there a faint tinge of olivaceous; the upper tail coverts, again, being like the back. A pure white streak begins at the nostril, and runs over the eye as a superciliary line; not extending, however, beyond the eye, but turning down around it at the posterior canthus, where it is continuous with the very extensively white under eyelid; this white of the under eyelid being separated at the anterior canthus from the superciliary streak by the blackish ashy lores. The white lower eyelid is separated from the white of the chin by an extension forward of the plumbeous of the side of the neck to the base of the inferior maxilla, where it merges into the dark lores. The lesser wing coverts are like the back. The median and greater are more like the primaries in color; very broadly tipped and more narrowly edged with pure white. The inner primaries and all the secondaries are edged with white, except towards the apices of the primaries, and towards their bases, where the edging is rather olivaceous than pure white. The inferior aspect of the folded wing shows a white central area, caused by the coalescence of the quite broad, dull white inner margins of the primaries. The rectrices are very broadly edged on both their interior and exterior margins with pure white; which decreases in width on successive feathers till reduced to a minimum, or almost obsolete on the median pair. The bird is pure white below, except a faint wash of very pale sulphury olivaceous on the sides and flanks. The white of the breast is a little encroached on by an extension of a light shade of the plumbeous of the sides of the neck.

Variations.—Specimens taken in July and August, in very worn and faded plumage, have the upper parts dull grayish brown instead of clear plumbeous, the olivaceous of the rump barely appreciable, and that of the sides very faint. The white margins of the wings and tail are either entirely wanting or reduced to a minimum. The markings of the sides of the head are more indistinct. In this state of plumage, however, it cannot be malidentified; for it is even more unlike any other North American *Vireo* than when in perfect condition. Specimens vary to a moderate degree in dimensions, but the colors of equally mature specimens are remarkably constant.

Remarks.—The relationships of this species are decidedly with *V. solitarius;* sharing with that species and *flavifrons*, etc., the compact stout form, robust and short bill, etc. The coloration of the head is very similar to that of *solitarius*, but the other differences are too great to render necessary any comparison between the two. *Vireo plumbeus* is the plainest-colored species except *V. vicinior*, infrà, as well as one of the largest and stoutest species of the United States. The name is peculiarly expressive of its most striking feature.

This is the species referred to by me in Newton's Ibis for April, 1865, page 164, as "*Vireo*, most like *solitarius*."

117. VIREO VICINIOR Coues, nov. sp.

Sp. Ch.—First primary spurious; half as long as second; second very short, about equal to eighth or ninth; fourth, fifth and sixth longest; third but little shorter; the wing thus being made short and much rounded. Tail very long; as long as the wings; decidedly rounded; rectrices with rounded, not acute tips. Bill very short, but robust and deep at base. Tarsus much longer than middle toe and claw; toes all short; the outer about equalling the inner, much shorter than the middle toe without its claws. Entire upper parts with sides of head and neck dull plumbeous, gradually gaining a tinge of olivaceous towards rump. A narrow white ring around eye. No distinctly defined stripes on side of head, nor dark lores. Wing coverts, quills and rectrices very slightly, if at all, bordered with white. Below entirely pure white; a hardly appreciable tinge of the slightest possible shade of sulphury olivaceous on sides under wings. Bill and feet horn bluish black. Length 5·70; extent 8·60; wing from carpus 2·50; tail the same: exposed portion of first primary ·75; of second 1·50; bill ·36; tarsus ·70; middle toe and claw ·52; inner do. ·35; outer do. ·42.

Habitat.—Fort Whipple, Arizona. Type and only known specimen No. 1507 of my collections, (40,697 Smithsonian Register,) adult male, May 24th, 1865. Very rare; probably a summer resident, wintering in the Gila and Lower Colorado valleys, or in Sonora.

Description.—The bill is short, but quite stout, very deep at the base, where it is compressed and higher than broad; the culmen very regularly convex in outline from the base to the moderately decurved, hooked, notched tip. The wings are short and remarkably rounded, the spurious primary so long as to be half the length of the second quill; which latter equals the eighth; there is but very little difference in length between the third, fourth, fifth and sixth; the first and last named, especially the former, being a little less than the other two. The tail is very long, equalling the wing from the carpus, and somewhat graduated; the lateral rectrices being ·20 of an inch shorter than the median pair; and all are rounded at their extremities. The tarsus is of moderate length ; decidedly surpassing the middle toe and claw. The toes are all rather short. The tip of the outer claw just reaches the base of the middle. The inner toe is remarkably abbreviated, the tip of its claw falling much short of the base of the middle one.

Above, the bird is of a dull ashy or leaden gray, like *plumbeus*, but rather duller; which color on the back, and, to a less extent on the wing coverts, acquires an appreciable tinge of olivaceous, most marked on the rump. There is a narrow white ring entirely surrounding the eye, formed by the edges of the eyelids alone. The lores are not dusky, but somewhat lighter colored than the surrounding parts; and the sides of the head have no definite streaks of color. The gray of these parts fades so insensibly into the white of the chin and throat that it is impossible to appreciate a dividing line; and the same is the case with the sides of the neck and breast. Under the wings, the wash of olivaceous on the sides of the body is appreciable, but it is very faint and pale. The greater coverts are narrowly tipped, and the outer margins of some of the primaries slightly edged with whitish. There is nothing of the definite white seen in *plumbeus*, though the whitish area on the inner aspect of the wing is much the same. The outer edge of the exterior tail feather is narrowly white, but the others are plain dusky. The iris is brown; the mouth livid white; the fauces pinkish ; the feet and bill dark bluish horn.

This is a most peculiar *Vireo*, totally diverse from all others of North America. The shape of the wing, character of spurious primary, length of tail and abbreviation of the inner lateral toe, give it an unusual shape. It will be noticed that the colors of the species are almost exactly those of *plumbeus*; but that in form the two birds are widely diverse. It is a smaller species than *plumbeus*, but its greatly elongated tail make the total lengths of the two nearly the same. The following antithetical diagnoses will readily separate them :—

V. plumbeus.—Wing (average) 3·00; tail 2·50. Spurious primary ·75; a third the length of the second primary; the latter intermediate between fifth and sixth. Tail about even; rectrices with obliquely truncated tips. Tarsus as long as middle toe and claw (·65). Tip of inner claw almost reaching to base of middle one. Wing coverts, quills and tail feathers broadly edged with pure white. Sides of head parti-colored, with distinctly defined stripes. Lores dusky, interrupting the broad white circumocular ring at anterior canthus.

V. vicinior.—Wing 2·50; tail fully as long. Spurious primary ·75; half the length of the second primary, which latter is intermediate between eighth and ninth. Tail decidedly graduated, the feathers with broadly rounded apices. Tarsus longer than middle toe and claw, (as ·70 to ·52). Tip of inner claw falling much short of base of middle one. Wing coverts, quills and tail feathers very narrowly, if at all, edged with dull white. Sides of head unicolor, unstreaked; the lores plain grayish white, not interrupting the continuity of the very narrow circumocular ring.

It is unnecessary to compare *vicinior* with any other species, it is so very dissimilar from them all. With but a single specimen, I cannot now give its variations, though these are doubtless parallel with those of *plumbeus*. The species must, I think, be exceedingly rare, or I should have met with others.

(118.) VIREO PUSILLUS Coues, nov. sp.

Sp. Ch.—Among the smallest of the genus, in form and general aspect resembling *V. Belli.* Above grayish ash, becoming more or less ashy olivaceous on the back; not more so on the rump than elsewhere. Below pure white, including under wing coverts ; on the breast sometimes a faint suffusion of the lightest possible shade of brownish gray; sides under the wings moderately tinged with sulphur yellow. A narrow short superciliary streak ; edges of eyelids, two bands on wings and narrow margins of outer border of wings and tail, dull white; on the latter tinged with olivaceous. Bill as in *V. Belli.* Exposed portion of spurious quill about half as long as second. Fourth primary longest; third and fifth about equal to each other, and but little shorter than fourth; second about equal to eighth. Tail very long, equalling the wing; rectrices quite narrow, with acuminate tips. Tarsus long, much exceeding the short toes; outer claw surpassing, inner about equalling the middle toe without its claw. Length (approximately correct only) 5·00; extent 7·25. Wing 2·15; tail about the same. Bill ·34; tarsus ·65; middle toe and claw ·50; outer do. ·42; inner do. ·39.

Habitat—Lower and Southern California, and probably Sonora, at least as far north as near Fort Whipple. Cape St. Lucas, *Xantus.* Fort Mojave, *Cooper.* Fifty miles south of Fort Whipple, *Coues*; breeding abundantly in the last mentioned locality. Never observed at Fort Whipple.

Description.—(No. 16,954, Smiths. Register, ♂, Cape St. Lucas.) The bill is shaped exactly as in *V. Belli*, and is similarly colored; being light horn blue, the lower mandible nearly white; the former color fading into reddish brown in drying. The iris is brown, the legs and feet dull leaden blue. The color of the upper parts is a plain dull ashy gray on the head; tinged with grayish olivaceous on the rest of the upper parts; but quite unlike the olive green of *Belli.* Below the pure white of the under parts is slightly obscured by a wash of barely definable grayish brown across the breast; and a light shade of sulphury olive tinges the sides under the wings. There is no approach to the bright sulphur yellow which so strongly tinges the whole under parts of *Belli*, especially the flanks and circumanal region; and invades the under wing coverts, which in *pusillus* remain white. The markings on the sides of the head are quite identical; and the edging of the wings and tail is similar in amount and in tint. The following are the differential points in the diagnoses of the two species, comparison being made with Audubon's type specimen.

V. Belli. Spurious primary two-fifths the second primary; third longest; second a little longer than seventh. Wing much longer than tail. Color above olive green, whole under parts except the throat strongly tinged with sulphur yellow.

V. pusillus. Spurious primary half as long as the second; fourth longest; second equal to eighth. Wings and tail equal in length. Color above grayish olive. No sulphur yellow below except a slight wash along the sides under the wings.

TROGLODYTIDÆ.

(119.) CAMPYLORHYNCHUS BRUNNEICAPILLUS (Lafr.) Gray.

Valleys of the Gila and lower Colorado. Common in the southern and western portion of the Territory. Not observed at Whipple. "Exclusively a cactus Wren;" (*Cooper.*)

It is quite possible that *Campylorhynchus affinis* Xantus, from Cape St. Lucas, may be found in the vicinity of Fort Yuma.

120. SALPINCTES OBSOLETUS (Say) Cab.

Common at Whipple, though less so there than in the more southern and western portions of the Territory. Almost exclusively confined to rocky hillsides, cañons and precipitous gorges or ravines. Restless, shy and noisy; the note being a very loud and strong whistle. Arrives in spring about April 25; remains until October. The moult is severe, lasting through part of September.

(121.) CATHERPES MEXICANUS (Sw.) Baird.

Not observed at Whipple; first noticed a few miles southward from that locality; generally distributed over the southern and western portions of the Territory, as high up the Colorado at least as Fort Mojave; nowhere very abundant. Rocky precipitous localities, cañons, etc. This species has a laughing whistle, unsurpassed for oddity as well as for power.

122. THRYOTHORUS BEWICKII (Aud.) Bonap.

Troglodytes Bewickii, Audubon, Orn. Biog. i. 1831, pl. xviii. p. 96.
Thryothorus Bewickii, Bonap. List. 1838. Baird, B. N. A. 1858, p. 363.
Troglodytes leucogaster, Gould, P. Z. S. 1836, 89. (Tamaulipas.)
Thryothorus (*Thryomanes*) *Bewickii*, var. *leucogaster*, Baird, Rev. Amer. Birds, 1864, pp. 122, 126, 127.

The most abundant and characteristic Wren of Whipple, resident all the year, and found in all situations.

The numerous specimens collected are of the var. *leucogaster*, as defined by Baird, l. c. suprà. Variety *spilurus*, Vigors, appears to be a coast type.

I have never seen the *Thryothorus Berlandieri* from Arizona; but think it probably will be hereafter detected, particularly near the New Mexican boundary of the Territory, in the southern portions of its extent. The types of the species are described from New Leon, Mexico.

123. TROGLODYTES PARKMANNI Audubon.

" *Troglodytes americanus* Aud." ! Heer., P. R. R. Survey, x. pt. iv. p. 41.
Troglodytes ædon, Idem, op. et loc. cit.

Very abundant; summer resident. Arrives April 20; remains until October.

Dr. Cooper informs me that so far as he knows this species never recurves the tail over the back, a habit so characteristic of *ædon*. I have myself noticed hundreds of individuals, and do not now recall an instance where this peculiar attitude was assumed. *Parkmanni* has always seemed to me to be a shyer, less familiar, more retiring and wood-loving species than its eastern representative; and though the measure of the song is the same, yet in tone and volume I have often thought it sounded a little different from the familiar trill of *ædon*. If some of these points of habit could be substantiated, they would go far towards eking out the rather slim diagnosis upon which the species now grounds its claim to recognition.

Dr. Heermann very wrongly says that " *T. americanus* Aud." is " abundant in the wooded portions of the country." We might suppose he had mistaken *Parkmanni* for this species, did he not also give *T. ædon* as being abundant too.

Troglodytes (*Anorthura*) *hyemalis* Vieill., a bird of the eastern province, has been recorded from Fort Tejon, Cala., (Baird B. N. A. p. 923,) and may probably be found in Arizona.

124. CISTOTHORUS PALUSTRIS (Wils.) Baird.

Cistothorus (*Telmatodytes*) *palustris* var. *paludicola*, Baird, Rev. Amer. Birds, 1864, p. 148.

Very abundant in a small swampy tract near Fort Whipple; and elsewhere observed in similar situations. Summer resident. Arriving early in April, and remaining until November. " Winters in the Colorado Valley, as high as Fort Mojave." (*Cooper*.) My specimens are referrible to Baird's var. *paludicola*.

CERTHIIDÆ.

125. SITTA ACULEATA Cassin.

Very common, permanent resident. Chiefly pinicoline about Fort Whipple. I have never seen a specimen out of an immense series which was not readily distinguishable from *carolinensis*.

126. SITTA PYGMÆA Vigors.

The most abundant and typical Nuthatch of all the pine regions of Arizona and New Mexico. Resident. Young appear in June. Semi-gregarious at all seasons. Seems to be exclusively pinicoline. Iris black. Bill bluish black; hard parts of mouth livid blue, soft parts flesh colored. The color of the under parts varies greatly from a very pale fulvous, almost white, to a decided ferruginous, almost like *canadensis.* Sometimes the under parts are smoky brown, as in *Picus Harrisii* from California and Oregon.

(129.) Sitta canadensis Linnæus.

Rare; perhaps only accidental. (Fort Yuma, *Ives.*) Not met with by me. Dr. Cooper never saw it at Fort Mojave.

128. Certhia americana Bonap.

It is a little singular that I never saw a specimen of this species in Arizona, though it is generally distributed over the Territory. Dr. Kennerly procured it very near the present site of Fort Whipple.

PARIDÆ.

129. Lophophanes inornatus (Gamb.) Cass.

Winter resident chiefly; but some doubtless remain through the year, breeding in the neighboring mountains. Not very abundant. Emphatically an evergreen oak species, eschewing the pines, and frequenting open hillsides.

Iris black. Bill black; horn blue along its commissural edges and at base. Feet deep leaden blue.

130. Lophophanes Wollweberi Bonap.

Permanent resident; common, more so at least than the preceding. Usually semi-gregarious except when breeding. Found in all situations; but chiefly affect the oak thickets, and the chaparral of open hillsides. Generally distributed through the Territory, and extending southward into Sonora.

131. Pœcile montanus (Gamb.)

Resident throughout the Territory, more particularly its pine tracts. Nowhere very numerous. The only species of black-capped and throated Titmouse ascertained by me to inhabit the Territory.

The American black-capped Titmice seem to me generically distinct from Linnæus' type of *Parus;* while they are entirely congeneric with *P. palustris* of Europe, Kaup's type of *Pœcile.*

P. septentrionalis is recorded from the Southern Rocky Mountains, and may hereafter be added to the Whipple list. (Fort Massachusetts, *Dr. Peters, U. S. A.*)

(132.) Auriparus flaviceps (Sund.) Baird.

"Abundant in the Colorado Valley, where it is a permanent resident," (*Cooper.*) I do not think it leaves the valley for the mountainous portions of the Territory.

133. Psaltriparus plumbeus Baird.

Resident and very abundant at all seasons. Decidedly gregarious, and, except when mated, always found in "flocks" of from five or six to as many as fifty or more; active, restless and noisy, familiar and unsuspicious. Eschews pines, and keeps entirely in the thick shrubbery of the hillsides, or the denser brush of creek bottoms and ravines.

No. 752 and others; iris bright yellow. No. 753 and others; iris dark brown. This difference seems entirely accidental, and not dependent upon age, sex or season.

The original types of the species described as *Psaltria plumbea,* by Prof. Baird, are from the Colorado Chiquito River.

ALAUDIDÆ.

134. Eremophila cornuta (Wils.) Boie.

Common; permanent resident in all situations adapted to its wants.

FRINGILLIDÆ.

135. HESPERPHONA VESPERTINA (Cooper) Bonap.

Chiefly a more northern and coast species; but extending as far south as the table lands of Mexico. It is undoubtedly a component of the Whipple Fauna, though I never succeeded in detecting it in that locality.

136. CARPODACUS CASSINI Baird.

Common; resident. A species conspicuously different from *purpureus* in habits as well as in form and color. Its range of habitat is quite diverse; and I have seen specimens taken during the breeding season, from the Table Lands of Mexico. "Extends west to the eastern slope of the Sierra Nevada." (*Cooper.*)

The difference in the tint of the red of the males, and its distribution on the under parts would alone readily distinguish it; independently of its larger size, large long bill, different proportions of primaries, etc., which latter features will always serve to separate females and immature birds.

My specimens range from 6·4 × 10·9 to 6·7 × 11·4. Iris brown; legs and feet brownish black; bill above deep horn blue, below flesh color more or less obscured by dusky. Very young birds of either sex have an ochraceous or light rufous suffusion over the whole body, most noticeable below. The streaks are more numerous and less sharply defined.

137. CARPODACUS FRONTALIS (Say) Gray.

Fringilla frontalis, Say. *Pyrrhula frontalis*, Bon. *Erythrospiza frontalis*, Aud. *Carpodacus frontalis*, Gray. Baird, B. N. A. 1858, p. 415.
Carpodacus familiaris, McCall, Pr. A. N. S. Ph. 1852, p. 61.
Carpodacus obscurus, McCall, Pr. A. N. S. Ph. 1851, p. 220.
Carpodacus "*californicus*"! Coues, Newton's Ibis., Apr., 1865, p. 164, (errore pessimo.)

Very abundant. Permanent resident, but most abundant in spring and fall. Eminently gregarious. Found in all situations. In spring keep mostly among thickets of *Salix* and *Populus*, on the young buds of which they chiefly feed.

The shade of red in equally adult males differs most remarkably. Immature males, in the late fall and winter months, show every possible gradation, from a plumage indistinguishable from that of the female to that of high spring condition; in which, also, the color of the throat, breast, crown and rump ranges from an intense crimson to a light rose red, almost pink; sometimes a bronzy tint is quite apparent. Young birds just from the nest differ in being much more thickly streaked below, the streaks themselves narrow and quite sharply defined, contrary to the general rule among young *Fringillidæ*. The wing coverts, secondaries and tail feathers are broadly edged with dull rufous. The crown and back are obsoletely streaked. The preceding relates to June and July birds. A common autumnal condition is to have the whole body, but particularly the under parts, washed with light rufous or ochraceous, in which the broad streaks are numerous and semiconfluent.

I have shot "Buriones" all the way from the Rio Grande, through New Mexico, Arizona and California to the Pacific coast, and cannot discover the slightest indication of another species tending toward *purpureus* or *californicus*. The latter species seems to be exclusively a coast bird.* At the same time *frontalis* is exceedingly different from the *C. hæmorrhous* of Mexico.

138. CHRYSOMITRIS (PSEUDOMITRIS) PSALTRIA (Say) Bonap.

Fringilla psaltria, Say, Long's Exp. Rocky Mts. ii. 1828, p. 40.
Fringilla (*Carduelis*) *psaltria*, Bonap. Am. Orn. i. 1825, 54, pl. 6, fig. 3.
Carduelis psaltria, Audubon's works.
Chrysomitris psaltria, Bonaparte, Comp. list, 1838. Baird, B. N. A. 1858, p. 422.

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* By an unfortunate oversight, I gave "*californicus*" as the Arizona species in Newton's Ibis, as above, instead of *frontalis*, an error it is quite important to correct.

Chrysomitris (*Pseudomitris**) *psaltria*, Cassin, Pr. A. N. S., Philadelphia, 1865, p. 93.

Abundant. Summer resident. Arrives last of April, remains until middle of September. Males are in dull plumage of females in August. Decidedly gregarious in autumn. Feed almost exclusively on buds and seeds. Probably less numerous in the southern portions of the Territory.

In typical adult males the pileum is black, *but this color does not extend below the eyes;* the lores and auriculars being olive like the back. Upper parts, exclusive of the wings, *clear olivaceous*, somewhat more yellowish, and with concealed white on the rump. The back may be somewhat marked with blackish spots, though rarely to the extent represented in Audubon's plate. The wings are black, though some of the lesser and median coverts are tipped with olive. The greater coverts are so broadly tipped with white as to form a conspicuous transalar fascia, and the secondaries and inner primaries are still more broadly edged on their outer margins with white. The tail is black, the three outer rectrices white on their inner webs to within a short distance from their tips, the shafts white along the white portions of the feather. A white spot at the base of the primaries (except on the first two or three,) is partially concealed by the bastard quills. Below, with the feathers on the side of the lower mandible, yellow.

The female has no black pileum, the crown being concolor with the back. The yellow of the under parts is less pure and bright. The edgings of the wings and coverts are grayish and narrow. The white on the inner webs of the lateral rectrices is only indicated by a small, irregular, dull gray spot. The spot at the base of the primaries is small and inconspicuous.

Young birds in August are above very dull and rather ochraceous olive, not conspicuously different from the under parts. The edgings of the wings are tinged with ochraceous. The basal primary spot is very small. There is no indication of white on the rectrices.

Old males changing plumage during both the vernal and autumnal moult, have the olive of the back dull and obscured by dusky; the pileum somewhat variegated with olive. The wings and coverts have scarcely a trace of white edging. The under parts are quite brightly yellow.

Why I have thus gone into detail in characterizing this species will be evident from the succeeding article. I wish it to be noted that the diagnostic points of *psaltria*, as compared with *mexicana*, lie in the black pileum definitely bounded on all sides with olive, not descending on the sides of the head below the eye; and in the decided olive of the upper parts. The bill is conical and quite stout; the gonys straight; the culmen a little convex. The species extends over the western portion of the continent to the Pacific, and nearly, or quite, to the Sonoran border.

(139.) CHRYSOMITRIS PSEUDOMITRIS MEXICANUS (Swains.) Bonap.

[A. Var. *mexicanus* Swains.]

Carduelis mexicanus, Swainson, Syn. Mex. Birds, in Phil. Mag. i. 1827, p. 435. (Table Lands of Mexico. Real del Monte. Temiscaltipec.) Wagler, Isis von Oken, 1831, p. 525.

Chrysomitris mexicanus, Bonaparte, Consp. Av. i. 1850, p. 516. Baird, Birds N. A., 1858, p. 423.

Chrysomitris (*Pseudomitris*) *mexicana*, Cassin, Pr. A. N. S. Ph. 1865, p. 93.

Astragalinus mexicanus, Cab. Mus. Hein., 1851, p. 159.

Fringilla melanoxantha, "Licht. Mus. Berol." (Quoted by Wagler, Isis, 1831, p. 525, as a syn. of *C. mexicana* Sw.)

Fringilla texensis, Giraud, Sixteen Sp. Tex. Bds. 1841, pl. v. fig. 1. G's type examined by me. Belly not white as stated.

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* *Pseudomitris*, Cass., nov. subg. ut suprà. Type *Frin. psaltria*, Say. Considered as probably belonging to subfamily *Cyanospizinæ* of Sclater.

?*Fringilla catotol*, Gmelin. S. N. i. 1786, 914.
?*Chrysomitris nana*, Bp. C. A. 1850, i. p. 516, fide Baird.
?"Cocozton, Hernand. Thes. p. 52. Cap. 192." (Quoted by Wagler, l. c.)

[B. Var. *columbianus* Lafres.]

Chrysomitris columbianus, Lafresnaye, Rev. Zool. 1843, p. 292. (Central America.) Baird, Birds N. Am. 1858, p. 423.
Astragalinus columbianus, Cabanis, Mus. Hein. 1851, p. 159.
Chrysomitris (*Pseudomitris*) *columbianus*, Cass., Pr. A. N. S. Ph. 1865, p. 93.
Chrysomitris xanthogastra, Dubus, Bull. Acad. Belg. xxii. i. 1855, p. 150.

[C. Var. *arizonæ* Coues.]

Chrysomitris (*Pseudomitris*) *mexicanus* Var. *arizonæ*, Coues, MSS.

Synonymy. Swainson's description* is very brief, unsatisfactory, and inaccurate. Although the tail is not two inches long, (varying from 1·50 to 1·75,) nor has its three lateral tail feathers (wholly) white, yet the diagnosis may be accepted as indicative of the bird now well known from all portions of Mexico as *Chrysomitris mexicanus*. Wagler's fuller description is quite pertinent. Upon the latter author's authority, I quote *Fringilla melanoxantha* of Lichtenstein. It is probable that Bonaparte's *Chrysomitris nana* belongs here. I have examined Mr. Giraud's type of *Fringilla texensis*. It has not a white belly as stated, but is absolutely identical with typical Mexican examples.

The synonyms adduced under var. *columbianus* do not seem to require comment.

Description. (Ad. ♂, spring, S. I. No. 4078, Parras, Mex.) Bill a little elongated, subconical, culmen slightly convex, gonys a little concave; bluish lead color. (Sometimes yellowish at base of upper mandible.) Black of upper parts quite pure and unmixed with olive, except on the rump, where a little olive and more white may be seen on parting the feathers. The black extends on the lores, auriculars, sides of the neck, and to a less extent on sides of breast; on the cheeks, between eye and lower mandible, somewhat mixed with yellow. *The under eyelid is yellow*, separated from the yellow of the throat by some black. The basal white spot on the primaries, (exclusive of the two first,) and the white margins of the outer edges of the secondaries are well defined, but the white tips of the median coverts, which form so conspicuous a bar in *psaltria*, are much narrower. The three exterior tail feathers are almost wholly white on their inner webs to within from a fourth to a third of an inch of their tips. Below the bird is wholly yellow.

Numerous Mexican specimens hardly differ from the above, except in the amount of white edging of the wings and coverts. This is so extremely variable, that it cannot be a character of the slightest consequence. One (No. 4077, New Leon, Mex.) has some little olive mixed with the black of the back.

Another series of skins, five in number, from Panama, Costa Rica, etc., without exception differ from the Mexican type as follows:—The black on the side of the head descends much lower, in fact to the angle of the mouth, completely occupying the cheeks and auriculars, and the under eyelid shows no trace of yellow. The under parts are of a much brighter yellow, rather orange than lemon. Moreover, they average less white upon the wings and tail. In some the white spaces only occupy two rectrices instead of three, only extend to within half an inch of the tip, and are, in fact, rather small irregular blotches, than well defined large spaces.

A third series, also from Central America, presents precisely the features last detailed, but the white on the tail feathers is either entirely wanting, as in No. 1818, or reduced to a minimum as in No. 39791. This form constitutes Lafresnaye's *C. columbianus*.

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* "Glossy black, beneath yellow, base of quills and lateral tail feathers white. Total length 4⅓; bill 3-10; wings 2⅓; tail 2; tarsi ½."

Still a fourth series is recognizable in the collections before me, embracing examples from New Mexico and Arizona; collected by myself near Fort Wingate, in New Mexico, and by J. H. Clarke on the Gila River. These exhibit a remarkable gradation towards the peculiar features of *psaltria*. The black of the back is mixed with about an equal amount of olive, the proportions of the two colors varying from e. g. No. 37088, where there is only a trace of olive, to e. g. Nos. 37091—2, where there is decidedly more olive than black, so much indeed that this color forms quite a contrast with the black pileum. The auriculars are black as in *mexicanus*, but the yellow lower eyelid, like that of *psaltria*, is not disconnected with the yellow of the throat. All three of these birds I shot out of the same flock at the same time, (June 28, 1864.) The Gila birds agree exactly with the most olivaceous of these just described. A specimen (No. 39094, ♂, Aug. 18, Fort Whipple,) of supposed *psaltria* with a pure olive back, has the auriculars black.

From the above detailed features of large series of skins, representing localities all the way from Panama to Northern Arizona, it will be evident that the typical style of *mexicanus* from the table lands merges, by insensible degrees, through Costa Rican examples into an extreme of form which has been designated as *C. columbianus*. In like manner, just north of Mexico where the confines of the species inosculate with those of *psaltria*, we have a race or form showing decided gradations towards the characters of the last named species. But still the typical *psaltria* is so very diverse from *mexicanus* proper, and the doubtful specimens incline so very decidedly towards the latter, that, in the impossibility of uniting *psaltria* with *mexicanus*, we must consider them as "varieties" of the latter, unless, indeed, they be hybrids between the two.*

Upon the whole, then, it may be best to refer all the black-backed examples to one species,—*mexicanus*,—recognizing three "varieties,"—*columbianus*, *mexicanus* and *arizonæ*,—as at least a convenient mode of indicating the differences, whatever be their value, which actually do exist.

Regarding the females of the two species and of the varieties, I confess my inability to distinguish them with any degree of certainty, except by the localities whence they come, since all are quite similarly colored, and there are no very tangible differences of form.

140. Chrysomitris Lawrencei (Cassin.) Bonap.

Abundant; probably resident. My numerous examples of this species, so widely dissimilar from any other, were all taken at Fort Whipple in winter. Although I never noticed it at any other season, I have little doubt that it is a permanent resident, breeding in the mountains of Northern Arizona. I have seen summer examples from Fort Tejon, Cal. The differences between winter and spring or summer specimens, consists in little else than the replacing of the yellow dorsal spot by olive gray, either pure or a little mixed with yellowish. The yellow of the other parts is as bright as in spring, and the black frontlet remains intact. Females want entirely the black on the head, which is all around plain olive gray, while the pectoral spot and other yellow parts are dull in tint, and restricted in extent, or even, as may be the case sometimes with the dorsal spot, entirely wanting. The iris of both sexes is dark brown. In summer the bill and legs are flesh colored, more or less obscured by dusky; in winter the bill is horn blue, and the legs, feet and claws blackish brown.

The species has been hitherto considered as chiefly a California Coast bird.

141. Chrysomitris pinus (Wils.) Bp.

A generally distributed species, undoubtedly to be hereafter added to the Whipple list. Fort Thorn, N. M., *Dr. T. C. Henry, U. S. A.*

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* "How convenient it would be if we could, with dignified imperturbability, accept a broad theory of hybridization as the correct solution of these constantly recurring and vexatious problems!"

142. CURVIROSTRA AMERICANA Wilson.

If, as is probably the case, the *Loxia mexicana* of Strickland is rightly to be referred to *C. americana*, then this species, being found breeding upon the Table Lands of Mexico, and so generally distributed throughout North America, must be added to the Arizona list. It is doubtless to be found at times at Fort Whipple.

Chrysomitris tristis, *Aegiothus linarius*, and, perhaps, *Curvirostra leucoptera* and *Pinicola canadensis*, though not to my knowledge hitherto detected in Arizona, will most probably be discovered in winter towards the northern boundary of the Territory.

143. PLECTROPHANES MELANOMUS Baird.

Resident? Rare. A single specimen taken Oct. 17, 1864, on open, grassy plains, is referrible to this species.

Some interesting peculiarities of the range of habitat of this species assist the characters presented by the bird in separating it from *P. ornatus*. It is known to breed on the Table Lands of Mexico.

(144.) PLECTROPHANES MACCOWNII Lawrence.

Extends from the vast arid plains of New Mexico into those of Southern Arizona. (*Dr. Heermann.*)

145. CALAMOSPIZA BICOLOR (Towns.) Bon.

"Abundant near the Pima Villages, A. T.," *Dr. A. L. Heermann*. This gentleman also says that he found it in the Mesilla Valley near Fort Fillmore. In crossing the Great Plains I found it abundant as far as the Raton Mountains, westward of which I have never seen it. In the north its westward range seems limited, but it extends along the Mexican border, and across the Southern Rocky Mountains and Valley of the Lower Colorado, and is found also at Cape St. Lucas. It is not recorded from the coast region of Upper California.

146. CHONDESTES GRAMMACUS (Say.) Bon.

Chiefly spring and autumn migrant, being very numerous at those seasons. Many breed, and a few remain all winter. Extends southward to Mexico. "Not detected in the Colorado Valley even in winter." (*Cooper.*)

147. PASSERCULUS ALAUDINUS Bonap.

Abundant. Summer resident. My numerous specimens are referrible to this supposed species, differing in some slight degree from the average of eastern birds in the grayish rather than decidedly yellow superciliary streak, and the general paleness of the colors. The bill is perhaps a little slenderer and more elongated. The differences which separate it from *savanna* appear to me no greater than are to be found when large series of the latter are compared with each other.

For some additional data upon the relationships of the North American *Passerculi*, see the London Ibis for 1866.

148. POOECETES GRAMINEUS (Gm.) Baird.

Very abundant. Summer resident. Winters in the Colorado Valley. Arrives last week in March. Remains till November. I can detect no differences between eastern and western birds.

149. COTURNICULUS PASSERINUS (Wils.) Bon.

Rare. Not observed at Whipple. Bill Williams' River, *Kennerly*.

150. ZONOTRICHIA GAMBELI (Nutt.) Gambel.

Abundant. Resident. First noticed Sept. 15, and at once becoming exceedingly numerous, they continued so until January; after which only a few stragglers were seen until the latter part of April, when they again became common. By far the greater part go further north to breed. In general habits this species seems to resemble *albicollis* rather than the more closely allied *leucophys*.

Iris bright brown. Bill bright lemon yellow, dusky reddish at tip. Feet brown with a yellowish tinge; soles pure yellow.

Z. leucophrys is given by Dr. Kennerly as found on Bill Williams' River. It is well known that occasional specimens are taken in the range of habitat which belongs especially to *Gambeli*.

151. JUNCO HYEMALIS (L.) Sclater.

Rare and accidental. During the winter of 1864-65, I shot three typical examples of this species; in each instance in company with both the succeeding birds.

152. JUNCO OREGONUS (Towns.) Sclater.

Exceedingly abundant winter resident. Arrive at Fort Whipple about Oct. 10; soon become very numerous and continue so until the second week in April; stragglers seen till May* Keep quietly hidden in out of the way places till cold weather has fairly set in, when they become very familiar, and are to be seen everywhere.

Both sexes, and at all ages and seasons after the first autumnal moult, are *never* without the reddish along the sides of the body; and the head is never entirely concolor with back.

Perfectly adult males have the head, neck all around, and breast pure black, nearly as trenchantly defined against the reddish of the back as against the white of the belly. The sides are strongly tinged with pinkish rufous. The dull chestnut or reddish brown of the back extends on the scapulars and outer edges of the secondaries and greater coverts. This color merges insensibly into olive gray on the rump. The two outer tail feathers on each side are pure white; the third is white with an edging of dusky along its inner web to near the tip. The bill is flesh colored, or delicate pinkish white; its apex dusky. The tarsi are dusky flesh color, the feet more obscure.

The young female, early in winter, has the back more dully colored, while the rufous tinge invades the nape and to some extent the crown; and the edgings of the wings and coverts are very light, being gray rather than rufous. The black of the head and breast has a slaty tinge; and is sprinkled with light grayish or rufous, which interrupts the deeper color, though never to the extent of making the parts concolor with the back. The wash along the sides is fainter and duller. There is usually less white in the sides of the tail.

Between these two extremes is to be found every possible gradation. The great majority of all males have the continuity of the black on the nape interrupted by rufous tips to some of the feathers. A specimen (1138 of my collection, Dec. 12, 1864,) has a large abruptly defined pure white spot, of an irregular shape, on the chin. This is a curious example of partial albinism.

153. JUNCO CANICEPS (Woodh.) Baird.

Struthus caniceps, Woodhouse, Pr. A. N. S. Ph. vi. Dec. 1852. p. 202. Id. Sitgreave's Rep. Expl. Zuñi and Col. Rivers, 1853, p. 83, pl. iii.
Junco caniceps, Baird, B. N. A. 1858, p. 468.
Junco dorsalis, Henry, Proc. Acad. Philada.; Baird, B. N. A.

Numerous examples in my collection, agreeing with Woodhouse's types from the San Francisco Mountains. A not very abundant winter resident at Fort Whipple; times of arrival and departure, and general habits those of *oregonus*, with which it associates freely.

The red of the back is a subtriangular patch of a bright ferrugineous tint quite different from the chestnut of *oregonus*; its extent is smaller, and it is less distinctly defined against the gray both of the nape and rump; and does not at any age or season invade the wing coverts. The outer edges of the secondaries are grayish brown, even in full plumaged birds; but the wing coverts are purely cinereous gray like the rest of the body. The gray extends along the sides of the breast and belly ; but it is much lighter in tint than on the upper parts ; and has no very distinct line of demarcation with the white of the abdomen ; which latter varies greatly in purity and extent. There is *never* any trace of reddish or pinkish on the sides; these parts being concolor with the throat and breast, as in *hyemalis*. The space between the eye and bill, and to a less extent the immediate circumocular feathers are blackish. The third lateral tail feather has a greater amount of dusky than of white. Females are like the males, except that the cinereous gray below is paler, the white abdominal region larger, and the union of these two colors more gradual.

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* In this there is an absolute parallelism with *J. hyemalis*, as observed at Washington, D.C.

I have thus gone somewhat into detail regarding the characters of *oregonus* and *caniceps*, because in my collection are several examples which I regard as most undoubtedly hybrids between the two. Their general aspect is that of *caniceps;* the head, neck and throat being slate gray, not black ; the lores decidedly blackish, etc. There is a large dorsal area, colored as in *oregonus*, and, most marked feature of all, the sides are strongly tinged with pinkish fulvous, exactly as in *oregonus*, instead of being plain cinereous gray, concolor with the throat, as in *caniceps*. Other specimens preponderate still more towards *oregonus*, in having the head and neck rather slate black than slate gray.

The specimens are such palpable hybrids, that they need not in the least invalidate the specific distinctions between the two species. In the case of *Colaptes auratus* and *mexicanus*, it has been proven incontrovertibly that such a thing is entirely possible between closely allied though quite distinct species.

I have examined the type of Dr. Henry's *Junco dorsalis*, from Fort Thorn, now in the Philadelphia Academy ; and I cannot discern wherein it differs from *caniceps* Woodh. This latter species however seems quite distinct from the Mexican *cinereus*, in the restriction of the chestnut to a well defined dorsal area, instead of its extending over most of the wing coverts and tertials ; and in the wholly white outer tail feathers, whereas in *cinereus* a portion of their bases, especially on the inner web, are dusky. The range of habitat of the two species is also diverse.

154. **POOSPIZA BILINEATA** (Cass.) Sclater.

Rare at Whipple, where the nature of the locality is not suited to it. Very abundant in the southern and western portions of the Territory. Open plains, grassy or covered with sage brush.

In adult birds the black of the upper border of the superciliary streak extends across the forehead. Sometimes old birds have a decided ferrugineous tint in the gray of the upper parts ; but are never streaked. The moult continues until October.

The young bird differs materially from the adult. There is no black about the head or throat, and the white streaks are nearly obsolete. The superciliary streak is short and indistinct; and is not bordered above by black. The lores are simply dusky and not pure black. The throat is pure white ; and has a row of small spots on each side forming an imperfect maxillary streak, dividing the white of the throat from that of the side of the lower jaw. The upper parts are strongly tinged with dull ferrugineous ; and are obsoletely streaked in the middle of the back with black. The wing coverts and tertials are strongly edged with ferrugineous. The breast is white streaked thickly with dusky. The tail is black as in the adult, and the outer feather is white on its external web ; but the next three rectrices are not tipped with white. The lower mandible and the feet are dusky flesh color ; instead of both being, as in the adult, bluish black.

155. **POOSPIZA BELLI** (Cass.) Sclater.

Rather uncommon about Fort Whipple, for the same reason as mentioned under head of *P. bilineata*. Abundant in the sage brush of the Gila Valley. Keeps much on the ground, where its motions are very like those of a *Pipilo*.

(156.) SPIZELLA MONTICOLA (Gm.) Baird.
Rare and perhaps accidental. Colorado Chiquito River, *Kennerly*.

157. SPIZELLA SOCIALIS (Wils.) Bonap.
Very abundant summer resident. Arrives third week in March; remains until latter part of November; a few stragglers may possibly winter. For a month after its arrival it is in large flocks of fifty or more; and chiefly keeps on the ground in open places, like *Passerculus* or *Pooecetes*. In the fall, again, collects in large flocks, associating with *Chrysomitres* and *Pipilones*, and with *S. atrigularis*. Mates in latter part of April. Remains in moult through greater part of October.

Numerous specimens shot in the fall presented an aspect so different from the usual well-known immature style of *socialis*, that I received the impression of a distinct species. The color of the crown was more the light ferrugineous of *monticola*, than deep chestnut, as in *socialis*. A large suite of adult spring birds I cannot distinguish satisfactorily from the common eastern bird.

158. SPIZELLA BREWERI Cassin.
Emberiza pallida of Audubon's works. Not of Swainson.
Spizella pallida of Kennerly's and Heermann's Reports, and of Coues, Ibis., April 1865, p. 164, from Arizona.
Spizella Breweri, Cassin, Pr. A. N. S. Ph. viii. 1856, p. 40. Baird, Birds N. A. 1858, p. 475.

Rare summer resident. A shy and retiring species, keeping mostly in thick brush near the ground.

This species constantly presents perfectly tangible differences from *pallida*, independent of the seasonal changes to which both are subject. In addition to the general paleness, or, so to speak, obsoleteness of all the markings of the body, the great differences in the colors and stripes of the head, as detailed by Cassin and Baird, readily separate them. *Breweri* has no ashy collar around the back and sides of the neck, and the breast; but the small streaks of the head and back are directly continuous. All the specimens before me measure rather more in length than those of *pallida*, due chiefly to a greater elongation of the tail. Other measurements do not exceed those of *pallida*.

Some July specimens, in moult, present a faded and dull gray appearance, with no signs of ochraceous on any part; and all the streaks are so narrow as to be merely faintly pencilled lines.

S. pallida is given by Dr. Kennerly from Bill Williams' River; and by Dr. Heermann from Tueson and Pima, in southern Arizona. These citations are doubtless to be referred to *Breweri*. *Pallida* is a species of the high central plains and the region of the Missouri. *Breweri* ranges through New Mexico, Arizona and California.

159. SPIZELLA ATRIGULARIS (Cab.) Baird.
Spinites atrigularis, Cabanis, Mus. Hein, 1851, p. 133.
Spizella atrigularis, Baird, B. N. A., 1858, p. 476.
Struthus atrimentalis, Couch, Pr. A. N. S. Ph. vii. 1854, p. 67.
Spizella evura, Coues, Newton's Ibis, January, 1865, p. 118. Ibid, April, 1865, p. 104. (A young bird, without black face and throat.)

Rare. Summer resident. Arrives early in April, and mates shortly afterwards; remains till middle of October. In small flocks or rather companies, in the fall associating with *Chrysomitris* and *Spizella*. In the spring has a sweet and melodious song, far surpassing in power and melody that of all other *Spizellæ*. Young birds want entirely the distinctive facial markings of the adults. Iris black. Bill dull red. Legs and feet brownish black. Length 6·00; extent 7·60; tail 3·10.

During my first autumn at Fort Whipple I shot numerous specimens of a *Spizella* generally resembling *S. atrigularis*, but wanting entirely the black face and chin. The interscapulars are of a quite different shade of chestnut. The outer web of the external tail feather, and, to a less degree, the edge of the inner web of the same, are quite purely white. The bill is dusky brown above, dusky flesh color below, the feet black. The unusual length of the tail also attracted my attention.

A fully adult male, procured April 20, has the black face and chin exactly as in *atrigularis*. The interscapulars are of a brighter chestnut than in the fall bird. The slate gray of the head and breast is deeper and purer, and more markedly contrasted with the also purer white of the middle abdominal region.

An adult female in deep moult, procured July 21, has also no trace of black about the head.

Several specimens from Cape St. Lucas, in precisely the plumage of my autumnal Whipple examples, I find labelled by Baird with the MSS. name "*S. cana*, n. s."

It is just possible that large series may hereafter establish a species, from Arizona and California distinct from the Mexican, both possessing the black on the face; but at present I cannot satisfactorily distinguish two species. Should they prove identical, they will afford an instance of a degree of seasonal variation quite unusual in the species composing the genus *Spizella*.

160. MELOSPIZA FALLAX Baird.

?*Fringilla melodia*, Wilson, Am. Orn. ii. 1810, 125, pl. xvi. f. 4. Coues, Newton's Ibis, April, 1865, p. 165.

Zonotrichia fallax, Baird, Pr. A. N. S., 1854, 119.

Melospiza fallax, Baird, Birds N. A., 1858, p. 481.

Common; permanent resident. Habits, manners and voice precisely those of *melodia*.

The locality * whence were described the original specimens of "*Zonotrichia fallax*" is so near Fort Whipple that, for all practical purposes, it may be considered the same. Such differences as exist are detailed by Prof. Baird, ut suprà, with whose expressed opinion that the species is of doubtful validity I entirely coincide.

M. fallax occurs throughout New Mexico, Arizona, and part of Southern California, and is particularly abundant in the Valley of the Colorado. Westward of the Colorado Desert *M. Heermanni* chiefly replaces it. The latter species is very probably to be found at Fort Mojave.

(161.) MELOSPIZA LINCOLNII (Aud.) Baird.

This extensively distributed species, which occurs throughout the United States and Territories, and south into Central America, has been taken in the Territory by Dr. Kennerly. I have not myself met with it.

The following Finches most probably remain to be hereafter added to the list: *Peucæa Cassini* Baird, and *Embernagra rufivirgata* Lawrence, in the valley of the Gila and Southern Arizona generally; *Passerculus schistaceus* Baird, on the upper Colorado. (Specimens of the latter species are recorded from Fort Tejon, Cala.)

162. GUIRACA CŒRULEA (Linn.) Swains.

Generally distributed; nowhere very common. A single specimen taken near Fort Whipple, Aug. 10, 1865. "Arrives at Fort Mojave May 1st." (*Cooper.*)

163. GUIRACA MELANOCEPHALA Swains.

Abundant. Summer resident. Arrives May 1st; remains until latter part of September. Frequents the thick brush of ravines, etc., and the cottonwood and willow copses of the creek bottoms. Its ordinary note intimately resembles that of *Lophortyx Gambeli.* Its song is superb; a powerful but melodious succession of clear rich rolling notes, reminding one somewhat of the *Icterus baltimore.* "Not met with in the Colorado Valley." (*Cooper*).

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* "Pueblo Creek, New Mexico," is now known as "Walnut" Creek, Arizona, and is hardly a day's march from Fort Whipple, which lies but a short distance off the trail of Lieut. Whipple's party, in going from the San Francisco mountains to the Headwaters of Bill Williams' River.

164. CYANOSPIZA AMŒNA (Say,) Baird.

Summer resident; not abundant. More common somewhat further South.

PIPILO Vieillot.

The genus *Pipilo* of Vieillot, as now usually defined by ornithologists, seems to embrace species not strictly congeneric with its type, *P. erythrophthalmus.* The differences lie chiefly in the shape of the wings and tail, and in the relative proportions of these parts to each other, as well as in the pattern of coloration.

In the bird now generally known as *Pipilo chlorurus* these variations from the type are most marked. The long wings almost equal the tail, which latter is scarcely at all graduated. The elongated first primary gives a more pointed shape to the wing. The pattern of coloration is unusual and quite peculiar. The genus *Kieneria* was established by Bonaparte,[*] with the *Pyrgisoma Kieneri* as type; and under it this author ranges *rufipileus*, *fuscus*, *Abertii*, etc. But the *P. Kieneri* seems quite congeneric with the type of *Pyrgisoma;* in which event *Kieneria* becomes a synonym, untenable for this or any other group. "*Pipilo*" *chlorurus* being generically dissimilar from the type of *Embernagra* (*Saltator viridis* Vieillot,) to which genus it has been referred, very probably is wanting in a tenable generic application, unless the name *Chlorura*[†] fills this vacancy.

After thus eliminating *P. chlorurus*, there still remain, in North America, four species, *crissalis*[‡] Vigors, *mesoleucus*[§] Baird, *albigula* Baird, and *Abertii* Baird; which agree with each other in differing from the black, white, and chestnut group of which *P. erythrophthalmus* is the type, in the proportions of wings and tail, amount of graduation of the latter, and pattern of coloration. They should, I am of opinion, constitute a separate generic group, of which *P. Abertii* may be considered the type. I believe that this genus has yet to receive a distinctive name.

165. PIPILO MEGALOYNX Baird.

Very abundant permanent resident. Rather more numerous in spring and fall than at other times. Shy and retiring, inhabiting the thickest brush. Is in moult through part of July, whole of August, and half of September. Ordinary call-note almost exactly like that of *Mimus carolinensis;* the song a rather harsh and monotonous repetition of four or six syllables, something like that of *Euspiza americana.* Females found with mature eggs in oviducts as early as May 5th.

The female of this species is not brown, conspicuously different from the male, but only dull brownish black. I think this is the case also with the other western *Pipilos* with spotted scapulars; in which there is to be found no such sexual difference as is seen in *P. erythrophthalmus.*

In carefully examining a very large series of *Pipilo* from Arizona, as well as from other localities, I find it difficult to discern constant and tangible differences between *arcticus* and *megalonyx.* My specimens are all referrible to the latter species, or variety, if it be only one. I prefer now to leave the subject as Prof. Baird has determined it; especially as in his forthcoming "Review" the matter will be re-examined.

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[*] Comptes Rendus. xl., Jan., 1855, p. 356.

[†] Used by Sclater, Cat. Amer. Bds., p. 117, as designating a subgeneric division.

[‡] Vig. Zool. Voy. Beechey, v. p. 19, which equals *fuscus* of Cassin, Baird and other American writers, but not of Swainson.

[§] Which probably is the true *fuscus* Swains. Syn. Mex. Bds. Phil. Mag. i. 1827, No. 46, and Two Cent., 1838, p. 347, No. 197. See Cabanis, Journ. f. Ornith., Nov., 1862, p. 474, for critique upon synonymy of *Pipilones.* But Cabanis' statement that *P. megalonyx* Baird is a synonym of *P. maculatus* Swainson will require confirmation.

(166.) "PIPILO" ABERTII Baird.

One of the most abundant and characteristic birds of the Valley of the Gila and Colorado. Ranges northward to within a few miles of Whipple, but is not found in the adjacent mountains. Common at Fort Mojave, and particularly so at Fort Yuma.

(167.) "PIPILO" MESOLEUCUS Baird.

Abundantly distributed throughout the warmer portions of New Mexico and Arizona, from the Valley of the Rio Grande to that of the Colorado. Not observed at Fort Whipple, though found breeding some twenty-five miles to the southward. Associates freely with the preceding, and inhabits the same regions ; and the two have very similar habits.

This species is permanently and very distinct from *crissalis*, Vigors, of the California Coast, or from *albigula* of Cape St. Lucas; which species it replaces in the southern Rocky Mountain region.

168. "PIPILO" CHLORURA (Towns.)

Spring and autumn migrant; none breed or remain all winter. Passes rapidly by Fort Whipple; being found only during the latter part of April and beginning of May, and during the month of September. The most silent and retiring of the "Pipilos" being very difficult to observe or capture. "Winters sparingly at Fort Mojave," (*Cooper*).

The species varies a good deal in the color of the iris ; e. g., No. 738, iris dark red; No. 739, iris olive brown; No. 740, iris reddish brown; all of which birds were shot at the same time.

(169.) PYRRHULOXIA SINUATA Bonap.

This Mexican species, introduced into the United States Fauna from the lower Rio Grande Valley, has been taken at Fort Yuma. It is now well known as a common bird of Cape St. Lucas.

The *Cardinalis igneus*, Baird, (Pr. A. N. S. Ph., Nov., 1859, p. 10,) very abundant at Cape St. Lucas, may also very probably be found in the southwestern portions of the Territory.

ICTERIDÆ.

170. MOLOTHRUS PECORIS (Gm.) Swains.

Very abundant summer resident; arrives middle of April and remains until October. Vast numbers seen at Fort Yuma in September. Winters abundantly in the Colorado Valley.

171. AGELÆUS PHŒNICEUS (Linn.) Vieill.

Common ; resident. Most numerous in October and November. Associates constantly and intimately with the succeeding species.

A. gubernator is given by Dr. Kennerly from Pueblo Creek, Ariz. He very probably made an erroneous identification. It is doubtful if either *gubernator* or *tricolor*, so abundant in California, ever cross the desert to the Colorado Valley, except in isolated and accidental instances.

172. SCOLECOPHAGUS CYANOCEPHALUS (Wagl.) Cab.

Exceedingly abundant; permanent resident. The typical Blackbird of Fort Whipple. Comparatively few breed in the immediate vicinity. Towards the end of September they become very numerous, and continue so until May, when few are to be observed until the following fall. Congregate in immense flocks about the clearings, stock corrals, etc., and are tame and familiar. By no means a marsh species, but rather a pinicoline one. Their note is a harsh rasping or grating squeak, varied at intervals by a rather melodious ringing whistle.

Male; average 10·00×16·50: iris light creamy yellow. Female; average 9·00×15·25; iris brown. Autumnal males are frequently seen in nearly complete plumage.

173. Xanthocephalus icterocephalus (Bon.) Baird.

Rather uncommon, being less numerous than at most other localities where found at all. Chiefly a summer resident. Rather a marsh and prairie species, than a bird of mountainous regions.

The variations in the tint, and in the extent or restriction of the yellow, dependent upon age, sex or season, as well as purely accidental, are very great, and almost interminable. Some immature males have the head saffron or ochraceous, the nape clouded with black, and a distinct median longitudinal black stripe along the crown. Sometimes very young males show no yellow whatever. The size is also liable to great variation; a female before me being hardly half the size of an adult male. (Wing 4·25 instead of 5·50; tail 3·25 instead of 4·10, etc.)

174. Sturnella neglecta Audubon.

Rare; resident. The nature of most of the vicinity of Fort Whipple is not well adapted to the habits of this species. I never saw a half dozen individuals during my whole stay.

175. Icterus Bullockii (Sw.) Bon.

Common summer resident. Almost exclusively frequents the willows and cottonwoods of the creek bottoms, to the small twigs of which its pensile nest is attached. Arrives late in April, and remains through greater part of September.

The female is plain grayish olive (pure gray on the rump,) brightening into olive yellow on the nape, upper tail coverts and tail. Forehead, superciliary streak, sides of head and neck, and a large space on the breast bright yellow. Space between eye and bill and the whole chin pure white. Rest of under parts grayish white, tinged with yellow on the under tail coverts. Median wing coverts broadly edged and tipped with white. Bill and feet similarly colored with those of the male.

CORVIDÆ.

176. Corvus carnivorus Bartram.

Corvus cacalotl, Wagler. Isis. 1831, 527. (Mexico.) Baird, B. N. A. 1858, p. 563. (Colorado Valley.)

Corvus carnivorus, Bartram; Baird. B. N. A. 1858, p. 560.

Resident. Very abundant, especially about the clearings, cattle enclosures, etc., where it congregates in immense numbers in the autumn and winter. During the severe winter of 1864–5 great numbers perished at Fort Whipple by cold and hunger.

I cannot distinguish the Colorado Raven even as a well-marked variety of *carnivorus*. Specimens from all points between the Arkansaw river and the Colorado desert seem to me quite identical.

177. Picicorvus Columbianus (Wils.) Bon.

Abundant at irregular intervals during the winter months; from the middle of October till March. High open forests. Restless, shy and noisy.

Iris brown; bill and feet black; hard parts of mouth livid, fauces pinkish. Specimens in moult have the plumbeous intercalated with a hoary, almost ochraceous whitish, produced by the fading of the original colors. Individuals vary much in size.

178. Gymnokitta cyanocephala Maxim.

This singular and interesting species has the form of a crow; but its colors and its habits are most decidedly garruline. It is a very abundant and characteristic bird at Fort Whipple, remaining all the year. It breeds in the retired portions of the neighboring mountains, the young leaving the nest early in July. During the winter months they collect in immense flocks; sometimes, as I witnessed in at least one instance, to the extent of a thousand or more. These large companies scour the country about, flying restlessly and noisily from place to place, and generally scattering over a considerable area. They are shy and wary, so that, notwithstanding their numbers, they are difficult to shoot. Their food is chiefly seeds, berries and nuts, especially the nuts of the *Pinus edulis*, and the berries of *Juniperus pachyderma*. They alight much on the ground, where their gait is firm, erect and easy. Their flesh is quite palatable.

Iris brown. Bill and feet black; soft parts of mouth rose red; corneous parts black. Males range from 11·50 to 12.00 in length, by from 16·50 to 19·00 in extent; the females from 11·00 to 11·50 in length, by 16·25 to 18·00 in extent. Differences in length are by no means always accompanied by corresponding discrepancies in extent of wings. The intensity of the blue is liable to great variation, as is also the distinctness of the white gular streaks. The blue of the head usually merges quite insensibly into the grayish blue of the back; but there is often quite a distinct line of demarcation. Specimens in poor plumage have frequently light gray primaries.

179. CYANOCITTA WOODHOUSEI (Baird.)

Cyanocorax californica, Woodhouse, in Sitgreave's Rep. Expl. Col. and Zuñi R. 1853, p. 77. (San Francisco Mts.)

Cyanocitta Woodhousei, Baird. B. N. A., 1858, p. 585.

Resident, and exceedingly abundant, being the most characteristic species. Found in all situations; but rather shuns dense pine woods and keeps on the open hill-sides, among the scrub oaks, etc. In winter collects in rather large flocks, sometimes as many as fifty; usually, however, seen in little companies of half a dozen individuals. A restless, vigilant, shy, and noisy species.

Males average 12·00×16·50; females about 11·25×15·50. In moult, examples are often seen with gray like that of the dorsal patch intercalated with the blue of the head. Iris brown; bill and feet black. Mouth dull bluish white.

I think there is no doubt of the propriety of separating the southern Rocky Mountain *Cyanocitta* from the true *californica* of the Pacific coast. The characters as detailed by Baird, ut suprâ, are very constant and quite appreciable.

It is very probable that *C. californica* and *C. Woodhousei* will be found associated at certain portions of the Colorado desert, as for example along the Mojave river.

(180.) CYANOCITTA SORDIDA (Sw.) Baird.

Chiefly a Mexican species, but extending northward to the Gila Valley. Fort Buchanan, *Dr. B. J. D. Irwin, U. S. A.* Copper mines, *J. H. Clark.*

181. CYANURA MACROLOPHA Baird.

Common; resident. Almost exclusively pinicoline. Generally found in small companies: never congregating to the extent even which *C. Woodhousei* does. Very shy, vigilant, noisy and tyrannical.

A very young bird taken July 22, on the San Francisco mountains, besides being smaller, and having a weaker bill and feet, differs considerably from the adult in colors. The upper parts are rather smoky brown than blue; and this color also invades the rump. Below the colors are also fuliginous; only a slight leaden or grayish cast indicating the future bright blue. At the same time the wings and tail are nearly as bright blue as in the adult; but the black bars upon them are very obsolete, or wanting altogether. There is considerable of a crest, but its color is fuliginous black instead of deep glossy black; and there are no traces of the white front and white about the eyes. The crest is about as long as that of an adult *Stelleri.*

The differences between this species and *Stelleri* of the Pacific coast, as detailed by Prof. Baird, seem to me quite sufficient to separate them. I may add, that in *macrolopha* the bluish white wash on the front occupies, when the feathers are undistorted, two straight lines, ascending perpendicularly from each nostril, and quite distinct from each other; while in *Stelleri* the tendency is for the whole front to be indiscriminately washed with bluish. In both species, the colored tips of the frontal feathers have a somewhat different texture and consistence from their dark basal portions.

A large series of specimens, chiefly from the head waters of the Columbia* have the front washed with dull blue just as in *Stelleri;* and have also the white supra-ocular spot of *macrolopha*. It is quite possible that hybrids of the two species may occur; but I am not prepared to say positively that such is the case in the present instance. Both species are found in the regions above referred to.

(182.) PICA HUDSONICA (Forst.) Bon.

Sparingly distributed throughout the Territory. Not personally met with at Whipple.

Young birds shot in June in the Raton Mountains near Taos, N. M., have the bill tipped with yellowish. The tail is only about three inches long. But there is a most remarkable similarity in color to the adults ; almost the only perceptible differences being a restriction of the white on the primaries, and rather dull greenish black instead of violet black wings and tail.

The yellow billed *P. Nuttallii*, so abundant in Southern California, does not appear to cross the Colorado desert to the river.

COLUMBIDÆ.

183. COLUMBA FASCIATA Say.

Summer resident; very rare; observed only on two occasions.

184. MELOPELEIA LEUCOPTERA (Linn.) Bonap.

Rare; summer resident. Young birds, half fledged, taken Aug. 15, 1864.

185. ZENAIDURA CAROLINENSIS, (Linn.) Bonap.

Abundant summer resident. Arrives last week in April, remains until middle of October. "Winters at Fort Mojave, and on the Pacific coast as high as San Francisco." (*Cooper.*)

To the traveller on the dry sandy wastes of Arizona this bird is always a welcome sight, indicating with certainty the presence of water in the vicinity. I have never known the sign to fail in my own limited experience. The nature of the food ordinarily taken necessitates an abundant supply of water. This was satisfactorily demonstrated to me on one occasion, when the crops of several, shot just as they were coming to drink, were filled with small seeds, as dry and hard as when first ingested, and totally unassimilable until macerated with water.

186. CHAMÆPELEIA PASSERINA (Linn.) Swains.

A rare and probably accidental visitor to the Valley of the Colorado. (Fort Yuma, *Ives*, La Paz, *Hutton.*) Probably goes at least as high as Fort Mojave. Perhaps variety *pallescens* Baird, from Cape St. Lucas.

PHASIANIDÆ.

187. MELEAGRIS MEXICANA Gould.

There can be no doubt of the propriety of separating the Western Turkey from the common species of the Eastern United States. The differences are very decided, and of such a character as to have an important bearing upon the question of the origin of the domesticated bird. The latter, as is well known, usually approaches *mexicana* rather than *gallipavo*, in its colors.

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* The locality whence came the *Garrulus Stelleri* of Swainson (F. B. A. 1831, ii. p. 294, pl. liv.) which is probably rather referrible to *macrolopha* than to the true *Stelleri*.

The wild Turkey is a permanent resident of the mountains of the immediate vicinity of Whipple, but quite rare, so much so that I procured no specimens. In some portions of the Southern Rocky Mountain region it is exceedingly numerous.

I have never detected any of the *Tetraonidæ* in Arizona, though very probably the *Centrocercus urophasianus* may be hereafter found towards the Utah border. Dr. Cooper has seen it on the Mojave River, about the southernmost point it has yet been observed.

Among the *Lagopidæ*, the *Lagopus leucurus* has been detected as far south as Cantonment Burgwyn, in New Mexico, (lat. 37°,) and most probably will be found in the mountains near the northern border of the Territory.

PERDICIDÆ.

188. LOPHORTYX GAMBELII Nuttall.

L. Ganbelii, "Nuttall." Gambel, Pr. A. N. S. Ph. 1843, p. 260. Baird, B. N. A. 1858, p. 645. Coues, Newton's Ibis. Jan., 1866, p. 46. (Biographical.)

"*Lophortyx californicus*," Coues, Newton's Ibis, 1865, p. 165. (Erroneous identification.)

The common and characteristic Quail of the Southern Rocky Mountain region from the Rio Grande to the Colorado, and south into Mexico. Replaces the *L. californica*. The two species have been found associated at Soda Lake, the sink of the Mojave River.

In my paper, as above, will be found some account of the habits of this Quail, which I had previously, in the same Journal, (Ibis, 1865, p. 165,) incidentally mentioned erroneously as *L.* "*californicus.*" From a large suite of specimens, I can describe the following stages from the callow state to the fully adult condition.

Downy state, a few days old.—Bill bright reddish above, nearly white beneath ; feet dull flesh color. Head yellowish white tinged with grayish brown ; the occiput with a broad spot of pure brown; on the centre of the crown (whence the plume will spring) a few black feathers, each longitudinally streaked with white. Entire upper parts brownish gray, (color of the lighter parts of the back of a *Sturnella*,) mottled with spots of black, and very conspicuously streaked with long, sharply pencilled lines of white. Primaries dusky, their outer vanes marbled with brownish black and grayish white. Whole under parts from the white jugulum narrowly and semiconfluently barred with black and ochraceous white, and longitudinally streaked with short but distinct lines of pure white. This coloration is most marked and definite on the breast; on the flanks and under tail coverts the markings are duller and more blended. The newly sprouted tail feathers are colored like the primaries. Length about 3½ ; wing 1¾ ; tail ½. This stage may be seen up to the last of August.

Quarter grown. (Aug., Sep.; length 6 or 7 inches.) The general hue is dull leaden gray, becoming ochraceous on the scapulars and wing coverts, which are still a little mottled, as described above. Below the gray is very light indeed, almost whitish, especially on the chin and middle of the belly. Breast obsoletely waved with light and dark shades of gray, with still some slight traces of the white longitudinal lines ; the crissal and anal regions the same, but somewhat tinged with brown. On the sides under the wings there is a slight fulvous or ferrugineous tinge, but nothing like definite strips. Primaries plain dusky ; tail more plumbeous ; very finely marbled with blackish and whitish. There is a broad superciliary white stripe extending to the extreme occiput.

During first autumnal moult. (Sep., Oct., Nov.) The preceding two plumages are those of chicks, with few true feathers. When the autumnal moult has made some little progress, the features of the adults begin to appear, mixed in a varying degree with the preceding downy colors. Some of the wing coverts and secondaries are still mottled, and the tail is a littled marbled, but most of the feathers are clear plumbeous. On the breast, feathers of this latter color are interspersed with the wavy gray ones. While the faint ferrugineous flush of the sides is retained, there are apparent the definite stripes of the adult. The crest is now an inch long, but still straight, not recurved, and rather brown than black. The bill is quite black, and the feet dark colored. At this season the peculiar head markings begin to appear, so that the sexual features are quite apparent.

The early age at which the crest begins to be apparent is surprising. Two or three feathers longer than the rest very plainly indicate it in chicks only a week or two old. But it does not become black and expanded and recurved at the tip, till the bird is full grown and has completed the moult.

Adult. Iris clear brown. Bill black. Legs and feet brown, sometimes with a livid bluish tinge.

(189.) Callipepla squamata (Vig.) Gray.

From the Valley of the Gila and Lower Colorado, as well as that of the Rio Grande. Not detected as far north as Whipple.

190. Cyrtonyx massena (Less.) Gould.

I had frequently been informed of the occurrence of this species at Fort Whipple, but I never met with it on but two occasions, when an adult male and female were procured. It is doubtless a resident, though rare species.

No. 1586. ♀. Oct. 11, 1865. Length 9·00; extent 17·00; wing 4·80; tail 2·00; bill ·60; tarsus 1·20. Upper mandible dull reddish horn; lower bluish white. Mouth whitish flesh color. Legs, feet and claws livid white, with a somewhat yellowish tinge posteriorly. Iris brownish olive. The cut-edges of the lower mandible are doubly dentated near their end.

[Note. Many of the following Water Birds are really identified with the Whipple series, but only those actually seen by me in that locality are given with uninclosed number.]

GRUIDÆ.

(191.) Grus canadensis (L.) Temm.

Abundant on the Colorado and Gila Rivers.

ARDEIDÆ.

(192.) Garzetta candidissima (Gm.) Bon.

Very abundant throughout the Valley of the Colorado.

(193.) Herodias egretta (Gm.) Gray.

Abundant along the Colorado. Very probably the large variety *californica* (Baird B. N. A. p. 667,) may also be found within the limits of the Territory.

(194.) Ardea herodias Linn.

Exceedingly abundant along the Colorado River. The nests of this species are often seen on some ledge of rock projecting from the precipitous cliffs which are covered with innumerable nests of *Petrochelidon lunifrons.*

(195.) Ardetta exilis (Gm.) Gray.

Generally distributed on the streams and cienegas of the Territory. Common on the Colorado.

(196.) Botaurus lentiginosus (Mont.) Steph.

Throughout the Territory. Common.

(197.) Butorides virescens (L.) Steph.

Very numerous along the Colorado and other streams of the Territory.

(198.) Nyctiardea Gardeni (Gm.) Baird.

Generally distributed; nowhere very numerous.

TANTALIDÆ.

(199.) Tantalus loculator Linn.

Very common on the Colorado, at least as high as Fort Mojave, but especially abundant on the lower portions of this river and of the Gila. Great numbers seen at Fort Yuma.

200. Falcinellus Ordii Bonap.

Sparsely distributed throughout New Mexico and Arizona. I have seen it at intervals from the Rio Grande to the Colorado. Fort Whipple, Oct. 18, 1864, and at other times during the autumn.

CHARADRIIDÆ.

201. Aegialitis vociferus (L.) Cass.

The only small wader found in any considerable numbers about Fort Whipple. Summer resident, arriving early in April and remaining until November.

(202.) Aegialitis semipalmatus, (Bp.) Cab.

Colorado River, September and October, 1865.

The *Charadrius virginicus*, and the *Squatarola helvetica* are both doubtless to be found in the Territory, though I have never seen specimens from within its limits.

PODASOCYS* Coues, nov. gen.

Ch. Gen. Bill two-thirds as long as the skull; equal to the middle toe and claw; but little more than half the tarsus. Wing of moderate length, reaching when folded beyond the tail; second primary nearly as long as the first. Tail exceedingly short, contained twice in the length of the wing from the carpus; square; the rectrices broad to their obtusely rounded tips. Legs stout and very long; denuded portion of tibia two-thirds as long as the tarsus, the latter nearly twice as long as the middle toe and claw; tibia and tarsus entirely covered with small, polygonal, reticulated plates, largest on the anterior face of the tarsus. Toes very short and stout; lateral ones unequal in length; tip of inner claw nearly reaching base of outer lateral one; tip of the latter falling short of the base of the middle one. Claws short, obtuse and little curved. Of moderate size, compact form and dull colors.

Type. *Charadrius montanus* Towns.

In general form this genus approaches somewhat *Ægialitis*, especially that section of which *melodus* is typical (*Ægialeus*). But it differs widely in the very short square tail, long denuded tibiæ, very long tarsi, much abbreviated toes, etc. It is possible that some genus already founded upon an exotic type may include *montanus*, but knowing of none such, I have no other alternative than to institute a new name, in separating a heterogeneous element from the genus with which it is usually associated.

203. Podasocys montanus (Towns.)

This species has an extensive range quite from the northern boundary of the United States to the Mexican border, and perhaps much farther each way; though at the same time it is strictly confined to the western portions of the continent. It is sparingly distributed throughout Arizona. I have constantly met with it from the Rio Grande to the Pacific, in all the regions suitable to its peculiar habits. I believe it is quite confined to dry plains either entirely bare or covered with straggly brush. In its habits it differs as much from most other *Charadriinæ* as does its form; calling irresistibly to mind the *Eremophila cornuta*. The stomachs of the specimens examined contained orthopterous and coleopterous insects.

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* From the Homeric epithet ποδας ωκυς—"swift-footed."

RECURVIROSTRIDÆ.

(204.) Recurvirostra americana Gmelin.
Recurvirostra occidentalis Vigors. Young.
Seen in large flocks on the sand-bars of the Colorado.

(205.) Himantopus nigricollis Vieill.
Common on the Colorado, in flocks, with the preceding.

PHALAROPODIDÆ.

(206.) Steganopus* Wilsonii (Sab.)
A single specimen seen on the Colorado, Sept., 1865. The species is very generally distributed throughout the interior of North America.

SCOLOPACIDÆ.

(207.) Gallinago Wilsoni, (Temm.) Bon.
Sparingly distributed throughout the Territory.

(208.) Macroramphus griseus (Gm.) Leach.
Sparingly distributed throughout the Territory. Perhaps *M. scolopaceus* may also be found.

(209.) Actodromas Bairdii Coues.
Tringa "*Schinzii*," Woodhouse, Sitgreave's Expl. Zuñi and Col. River, 1853, p. 100. Not of Brehm, nor of authors generally.
Tringa Bonapartei, "Schlegel," Cassin, in Baird's B. N. A., 1858, p. 923. In part. Of the specimens there enumerated Nos. 4869, 5442, 8800 are of this species; No. 3451 is the true *Bonapartei*.
Actodromas Bairdii, Coues, Pr. A. N. S. Ph. 1861, p. 194.

Very generally distributed throughout the whole interior of North America. No instances of its occurrence on either the Atlantic or Pacific coasts have come to my knowledge. Examination of several specimens taken near the Pueblo of Zuñi, in New Mexico, by Dr. S. W. Woodhouse, which were not accessible at the time of the preparation of my monograph, as above, shows them to belong to this species, and not to the *A. Bonapartei*, with which Dr. Woodhouse had identified them under the erroneous name of *Tringa Schinzii*. These specimens are interesting, as extending the range of the species west of the Rocky Mountains, and causing it to be included in the Whipple avifauna.

This species has been recently referred to *A. maculata*, and considered as founded upon a smaller race or upon immature specimens of the latter species, by Dr. H. Schlegel;† certainly an unfortunate error, and one well illustrating how unsafe it is to pass judgment upon a species with which we are autopically unacquainted. If there be any specimens in the Museum of the Pays-Bas referrible to *maculata* in any of its variations of size or colors, they are by no means examples of the species I have named *Bairdii*.

(210.) Actodromas minutilla (Vieill.) Coues.
Seen in flocks on Little and Great Colorado Rivers, from July to October.

(211.) Ereunetes pusillus (Linn.) Cass.
Common on the Colorado. It is quite possible that Mr. Lawrence's new *E. occidentalis* may also be found on the streams of the Territory.

212. Symphemia semipalmata (Gm.) Hartl.
Sparsely distributed throughout the Territory. Individuals seen Oct. 18th, 1864, in a marsh near Whipple.

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* The three North American species of Phalaropes are so dissimilar in form as to amply indicate as many generic types: *Steganopus* Vieill. (*Wilsonii*); *Lobipes* Cuv. (*hyperboreus*); and *Phalaropus* Briss. (*fulicarius*.)

† Article *Tringæ* in Cat. Mus. d'Hist. Pays-Bas.

(213.) GAMBETTA MELANOLEUCA (Gm.) Bon.
Abundant on the Colorado.

214. RHYACOPHILUS SOLITARIUS (Wils.) Bon.
A single specimen taken at Fort Whipple, August, 1864; at a small pool in high thick pine woods.

(215.) TRINGOIDES MACULARIUS (L.) Gray.
Very numerous along the Colorado.

216. NUMENIUS LONGIROSTRIS Wilson.
A single specimen, taken in August, 1864, at Fort Whipple.

Other limicoline Grallæ to be found, probably, are *Tryngites rufescens* and *Limosa fedoa.*

RALLIDÆ.

(217.) RALLUS VIRGINIANUS L.
This species has been detected in the Territory.

(218.) PORZANA CAROLINA (Linn.)
Colorado River, *A. Schott.* I think it probable that one or two other Rails are to be added to the avifauna of the Territory.

(219.) FULICA AMERICANA, Gm.
Abundant along the Colorado.

ANATIDÆ.

(220.) CYGNUS AMERICANUS Sharpless.
Colorado River. Fort Mojave, *Cooper.*

221. ANSER HYPERBOREUS Pall.
Common on the Colorado. Specimen taken near Fort Whipple, Oct. 17, 1864.

(222.) ANSER GAMBELI, Hartl.
Anser frontalis, Baird, B. N. A. 1858, p. 762. Young. (Fort Thorn, N. M.)
Colorado River. Abundant.
I am informed by Prof. Baird that he is now satisfied that his *A. frontalis* is only an immature stage of plumage of *A. Gambeli.* An analogous plumage is known as one of the conditions of the European *Anser albifrons.*

(223.) BERNICLA CANADENSIS (L.) Boie.
Colorado River.

(224.) BERNICLA HUTCHINSII (Rich.) Bon.
One of the most abundant geese of the Colorado Valley. *B. nigricans* seems to be exclusively a maritime species.

225. DENDROCYGNA FULVA (Gm.) Burm.
A pair, taken in November, about twenty miles from Fort Whipple. This is the only instance in which the species has come under my observation from Arizona. *Dendrocygna autumnalis* will also doubtless be found in the Territory.

226. ANAS BOSCHAS L.

227. DAFILA ACUTA (Linn.) Jenyns.

228. NETTION CAROLINENSIS (Gm.) Baird.
These three species are abundant on all the waters of the Territory.

229. QUERQUEDULA CYANOPTERA, (Vieill.) Cass.
Numbers of this Teal were observed in October on the head of the San Francisco River, near Whipple. At the same season during the following year I saw them in numbers on the Colorado River.

The three following *Anatinæ* are also found on the Colorado River:

(230.) Mareca americana (Gm.) Steph.

(231.) Spatula clypeata (L.) Boie.

(232.) Chaulelasmus streperus (L.) Gray.

(233.) Bucephala albeola (L.) Baird.

This is the only one of the *Fuligulinæ* which, so far as I am aware, has been actually brought from Arizona; though undoubtedly species of *Fulix* and *Aythya* are found within its limits.

The same remarks apply to several species of *Merginæ*; especially to *Mergus serrator*, and *Lophodytes cucullatus*.

LARIDÆ.

(234.) Larus delawarensis Ord.

This species I saw on the Colorado in the autumn of 1865. It is very probable also that the *L. californicus* may be detected in the same region. Mr. Xantus has sent it from Fort Tejon, California.

(235.) Chrœcocephalus atricilla (L.) Lawr.

Colorado River, particularly its lower portions. A specimen taken over a hundred miles from any body of water, near the eastern border of the Territory.

(236.) Chrœcocephalus philadelphia (Ord.) Lawr.

Very abundant on the Colorado. I am under the impression that I also saw *Ch. Franklinii* about twenty miles from the river near Fort Mojave. The Colorado Valley is quite within its known range of migration.

237. Sterna Forsteri (Nuttall) Lawrence.*

S. hirundo, Sw. et Rich. F. B. A. 1831, ii. 412. (Nec. Linn.)

S. Forsteri, Nuttall, Man. Orn. 1834, ii. p. 274. (In foot-note under *S. hirundo;* name proposed in event of "*hirundo* Sw. Rich." proving distinct. No full description.)

Lawrence, Ornithological Notes, in Ann. Lyc. Nat. Hist. of New York, 1852, page 3. Lawrence, B N. A. 1858, p. 862. (Definite characterization of species, and full description.) Coues, Rev. Terns N. A.. Pr. A. N. S. Ph. 1862, p. 544. (Gives the different ages and stages of plumage, and comparisons with *hirundo* and *macrura.*)

S. Havelli, Audubon, Orn. Biog., v. 1839, p. 122, and his other works. Lawrence, Birds N. A., 1858, p. 861. Coues, Rev. Terns N. A., Pr. A. N. S. Ph. 1862, p. 543. (Considers it as adult winter plumage of *Forsteri.*)

This species occurs on the Colorado, as indeed on most other of the large rivers of the interior.

(238.) Hydrochelidon fissipes (Linn.) Gray.

Sterna fissipes, Linn., S. N., 12th ed., 1776, p. 228.

Hydrochelidon fissipes, Gray, Genera, iii. 1849, p. 660. Coues, Pr. A. N. S. Ph., Dec., 1862, p. 554.

Sterna nigra, Brisson, Boie, and other authors, but not of Linnæus, which is *leucoptera* auct.

Sterna plumbea, Wilson; *Hydrochelidon plumbea*, Lawrence, and other American writers. (American bird identical with European.)

Has been taken on the Colorado. "Mojave River," *Cooper*.

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* To Mr. G. N. Lawrence of New York is entirely due the credit of first bringing this species prominently into notice, so long ago as the year 1852, and of carefully distinguishing it from *hirundo*. Nuttall's original notice is so brief and unsatisfactory, that it should hardly be accepted as the first characterization of the species; which ought in all propriety to bear Mr. Lawrence's rather than Mr. Nuttall's name. For further elucidation of this Tern, see my Rev. Terns N. A., ut suprà.

I have seen *Sterna antillarum* mihi ex Lesson, (*frenata* Gamb. *argentea* Nutt. nec Maxim. *minuta* Wils. nec L.) from the coast of California, and have little doubt that it is found on the Colorado River as well.

PELECANIDÆ.

(239.) PELECANUS ERYTHRORHYNCHUS Gm.

Abundant on the Gila and Colorado Rivers.

It is a question with me whether this species should retain the name above given by Gmelin; to the exclusion of the very pertinent "*trachyrhynchus*" Lath. The bill is not red at all, but yellow; and it is the *P. fuscus* whose bill really is red. The name thus conveys such an erroneous impression, as should justify its rejection.

The *P. fuscus* is essentially a maritime bird, and if found upon the Colorado at all, is probably only a straggler.

PHALACROCORACIDÆ.

(240.) GRACULUS DILOPHUS (Sw.) Gray.

Gulf of California and lower Colorado, *Cooper*.

COLYMBIDÆ.

(241.) COLYMBUS TORQUATUS Brünn.

Winter resident on the Colorado river. Common.

(242.) COLYMBUS PACIFICUS Lawr.

C. pacificus, Lawrence, Birds N. A. 1858, p. 889. Coues, Syn. *Colymbidæ* N. A. in Pr. A. N. S. Ph. 1861, p. 228. Coues, Newton's Ibis, 1866.

Much material additional to that possessed by Mr. Lawrence in 1858, or by myself in 1861, tends to confirm the validity of this species, first described from young specimens. I have since then seen large suites of adult birds, chiefly from the interior of Arctic America, and am quite confident that my remarks (l. c.) upon its relations to *C. arcticus* are pertinent. See also my notes in Newton's Ibis, as above cited.

PODICIPIDÆ.

(243.) PODICEPS (DYTES) CORNUTUS Lath.

Colorado River.

(244.) PODICEPS (PROCTOPUS) CALIFORNICUS (Heerm.) Coues.

Podiceps californicus, Heermann, Pr. A. N. S. Ph. 1854, p. 179. Young bird. Lawrence, B. N. A., 1858, p. 896. Young.

Podiceps (*Proctopus*) *californicus*, Coues, Syn. *Podicipidæ*, in Pr. A. N. S. Ph. 1862, p. 231. (Considers it as =*P. auritus ex Americâ.*)

Ponds near Fort Mojave, Colorado River, *Cooper*.

The original *P. californicus*, as characterized by Dr. Heermann, is based upon an immature bird, and its relationships to *P. auritus* by no means indicated. It was shown in the Proceedings of the Philadelphia Academy for 1862 that the bird is neither more or less than the young of the American *auritus;* full plumaged specimens of which I easily distinguished from the European *auritus*. The name *californicus* I adopted as obviating the necessity of a new one, although Dr. Heermann's diagnosis gives none of the special points which separate the bird from *auritus;* but shall claim the species for my own, from the very different interpretation of it which I have elucidated.

(245.) PODILYMBUS PODICEPS (L.) Lawrence.

Colorado River. Abundant.